A SYSTEM DYNAMICS APPROACH TO HEALTH SYSTEM TRANSFORMATION: A CASE STUDY OF TERTIARY SERVICES PROVISION IN THE KWAZULU-NATAL DEPARTMENT OF HEALTH

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As the candidate's supervisor I agree to the submission of this dissertation for examination. To the best of my knowledge, the thesis is primarily the student's own work and the student has acknowledged all reference sources.

The above student has also satisfied the requirements of English language competency.

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RESEARCHER: **M. PILLAY**

DATE: 14th September 2020

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DEDICATION

I offer my humble salutations to my spiritual guide and mentor, Bhagawan Shri Sathya Sai Baba, who taught me both theory and practice in this lab called life. Your many discourses, interviews and blessings have inspired me in my quest to experience the inner technology of transformation. I am eternally grateful for your love and all the opportunities you grace me with, to strive to become a worthy instrument in this divine mission. I am beholden to you for your spiritual direction to expand my consciousness and for endowing me with personal, professional and leadership roles.

To my beloved sister Renuka Pillay-Naidoo, I dedicate this work to your memory. I am appreciative of our incredible bond and the unwavering telepathic relationship we shared as siblings, which kept us grounded in practising our family values and Sai's teachings. I am grateful, for intuitively we knew that our connection was beyond this physical material sphere of life, as each of us sought to serve in the health and education professions respectively. Sharing those teachable moments with integrity, compassion and faith has been my privilege, thank you. I am honoured to have had you, my sister Renu, with your unique style as educator, social activist, advocate, agent of change, policymaker and trailblazer, contribute to improving the quality of human life and unlocking individual potential, through educational reform and justice. This impacted on many children's lives in Africa and around the globe.

ABSTRACT

When staff attrition intensifies in a flagship hospital, which has been internationally benchmarked for its best practices, then health care provision is in crisis. Hospital managers are inundated by resource constraints and challenging priorities that make excessive demands on their time, energy, leadership practice, spirit of work and motivation. These leaders are consumed by operational matters such as attending meetings, resolving human resource issues, hospital management and administrative tasks, which leave them with limited time for coordinated strategic planning, monitoring implementation of services or reflection. Consequently, systemic tension exists between policy implementation and service delivery, resulting in escalating patient and staff complaints, dissatisfaction, and medical litigation, thereby producing instability and fluctuations in the health ecosystem organizational behaviour.

In examining literature which proposes the value of a systemic approach to organisational behaviour, I decided to embark on this study to apply the qualitative system dynamics (SD) approach and the complexity theory methodology. I explored the dynamic complexities in the KwaZulu Natal (KZN) health ecosystem behaviour, the underlying systemic factors and their inter-relationships, the organisational messiness, and the uncertainties and policy processes that impact on effective service delivery in the one central and three tertiary hospitals. Focus group discussions (FGD) were among the research techniques used, whereby dialogue with participants identified the variables and verified the data collected. These conversations deepened our understanding of the research gap, that is, the sustained shortage of medical specialists over time; the supply and demand of specialists in KZN hospitals, and suggested changes to workforce planning, so as to diffuse these types of tensions within managed systems. While using the SD approach, our rational systems, critical and complexity thinking around issues and simulating circumstances and organisational behaviour; multidimensional social interactions, beliefs and paradigms, all became evident. Feedback loops in causal loop diagrams (CLD) co-constructed with the FG, facilitated our visualizing the ontological context; how the elements interconnect, interact and change over time. The significance of time delays, which cause tensions in policy implementation, governance and decision-making that affect dynamic system behaviour, was apparent.

The CLD identified the leverage points for a complex, all-embracing, multi-level approach to organizational transformation. I discovered, through this study, knowledge and skills to effect profound transformation in my awakened leadership practice. This research contributes to emerging literature on applying the SD approach to health care leaders becoming effective and committed to enact integral ethical health care. It recommends paradigmatic *deconstruction* in reductionist thinking;

shifting egocentric consciousness and limiting health care practices; constructing *whole systems thinking*, *integrated participative consciousness*, and a *transdisciplinary integral team approach,* through awakened integral leadership.

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LIST OF ACRONYMS

4IR	Fourth Industrial Revolution
APP	Annual Performance Plan
AR	Annual Report
CC	Critical Care
CEO	Chief Executive Officer
CFO	Chief Finance Officer
CLD	Causal Loop Diagrams
COO	Chief Operating Officer
CST	Critical Systems Thinking
DOH	Department of Health
EQ	Emotional Intelligence
FG	Focus Group
FGD	Focus Group Discussions
HMIS	Health Management Information System
HPCSA	Health Professional Council of South Africa
HPTDG	Health Professional Training and Development Grant
HR	Human Resources
HRH	Human Resources for Health
IALCH	Inkosi Albert Luthuli Central Hospital
IBF	Input-Based Financing
ICT	Information and Communication Technology
IT	Information Technology
JME	Joint Medical Establishment
KEH	King Edward Hospital
KZN	KwaZulu-Natal
NDOH	National Department of Health

NHI	National Health Insurance
NTSG	National Tertiary Services Grant
O&G	Obstetrics and Gynaecology
ONCO	Oncology
ORTHO	Orthopaedics
PAEDS	Paediatrics
PERSAL	Personnel Salary
PHC	Primary Health Care
RBF	Result Based Financing
SA	South Africa
SAHWCO	South African Health Workers Congress
SD	System Dynamics
SMT	Senior Management Team
SQ	Spiritual Intelligence
UKZN	University of KwaZulu-Natal
WHO	World Health Organization

CHAPTER 1

EXPLORING DYNAMIC HEALTH SYSTEM BEHAVIOUR

1.1 INTRODUCTION

The public health sector is a dynamic system comprising of multifaceted and complex categories of health personnel and sub-systems, interacting both within and outside the health sector, that operate internally and/or externally of Government (Engelbrecht & Crispi, 2010). In a study to evaluate Health Management in the Public Health sector, Doherty and Gilson (2011) observed that global advances in public health, scientific knowledge and technological skill have resulted in dynamic and better diagnostics, treatment and management of disease. Yet several signs show that health care provision in the 21st century is in crisis. Fulop et al. (2001) and Van Damme et al. (2011) explain the health system as operating across levels. These include: macrosystems at global and national level, mesosystems at regional or provincial level and microsystems at local level.

Sub-systems consist of interconnections and balancing policies, governance, strategies, resource allocation and coordination across functions and service delivery. Human resources are one of these sub-systems. According to Gilson (2012), international, national and local health systems research of real-world problems investigate the means by which health policy and systems research can strengthen health system development and implementation. The World Health Organization Annual Report (WHO, 2015) emphasises health policy and systems research of real-world problems, for example, planning for health human resources. In South Africa (SA), at the national level, the South African (SA) National Development Plan 2030 (NDP, 2015) has postulated that one of the strategic priorities includes the complete reforms of the health systems which should encompass improved management, especially at the institutional (hospital) level, and higher numbers of and better-trained health professionals.

Further, the South African Health Review (SAHR, 2011) indicates that 25 years into democracy in SA, the health systems reforms still ignore the importance of transformed leadership in health, human resource planning and management, policy implementation and

the impact of how absenteeism, and high staff turnover cause burn-out in healthcare professionals' intrinsic staff motivation. According to Portnoy (2011), the quality of patient care is negatively impacted upon by burn-out amongst nurses, which also decreases productivity and staff morale, and increases absenteeism, which consequentially result in financial impact on the hospital.

The SA National Department of Health Policy (2013) describes hospitals as sub-systems within the health system and are categorized according to their complexity of service provision, namely, District, Regional, Tertiary and Central Hospitals. Tertiary and Central hospitals are the most complex sub-systems in which the provision of Health Services is a comprehensive set of professional specialist-led services with unique, complex and expensive technologies which are provided to a defined geographical catchment population.

According to Sterman (2000), the nature of complex sub-systems is that they are in a continuous state of change which is known as dynamic complexity. Dynamic complexity in the health system planning arises from multiple feedback interactions among the various actors, and other variables which evolve and change over time. The SAHR (2011) recommended that health professional leaders are expected to adapt to change and new business models in order to implement health policy reforms and use opportunities to improve quality health service delivery. Windows of opportunity, for example, are specialist curriculum reforms with improved clinical programmes for specialist training, career development and enhanced promotions. The report has also highlighted that leaders have underestimated the strain on their front-line health specialists that arises from the causative feedback effect within the recruitment system. As leaders analyse these causative feedbacks, insight into the complexities and dynamic nature of the recruitment system are discovered.

At the provincial level, the 2015/16 KwaZulu Natal (KZN) Department of Health (DOH) Annual Performance Plan (APP, 2014) identified a decreased supply of specialists in the four Tertiary Hospitals, as one of the main reasons for the failure of the system to meet the increased burden of disease in 46 Tertiary Health Services Clinical Specialties. This was further exacerbated by the increased patient load demands which impacted on service delivery in KZN DOH.

Systematic research has shown that a decreased number of specialists results in fewer patients being referred to specialized Tertiary Health Services (Barber, 2010). As the tertiary

services demands on patient access increases, fewer specialists results in long patient waiting times, decreased patient satisfaction and compromised patient quality of life.

The 2015/16 KZN DOH APP (2014) identified this cause and effect of decreased number of specialists leading to an inability of the KZN DOH to achieve clinical governance performance targets such as decreased Infant Mortality Rates (IMR), reduced Maternal Mortality Rates (MMR), improved management of Cancers and optimizing the Average Length of Stay etc. in Tertiary Hospitals.

1.2 MOTIVATION FOR MY STUDY

For the past nine years, I have managed the Tertiary and Central Hospital Services in the KwaZulu Department of Health, as a Provincial Programme Manager. Using an inclusive, participative leadership style to integrate senior management teams at Tertiary and Central Hospital has resulted in improved hospital management capacity but not in hospital or institutional stability. According to Sterman (2006), delays in decision making, HR processes and supply chain policies and procedures produce instability and fluctuations in the system. To restore equilibrium or institutional stability in the system, adequate corrective actions need to be taken. Reflecting on my experiences, I discovered that *transformation & leadership are inextricably connected.* Similarly, my experiential learning has revealed that leadership is a complex responsibility rooted in multidimensional social interactions, beliefs and paradigms; thus, it is very difficult to influence people to achieve defined goals. Concern over long patient waiting times for treatment or admissions, high staff turnover, decrease in number of specialists and increase in the number of patients, as well as staff dissatisfaction with the KZN DOH ecosystem motivated this study.

1.3 LITERATURE REVIEW

1.3.1 Overview of the Literature Review

The extensive literature review which I conducted was to establish a theoretical framework for my topic and to justify the thesis. The literature review also provided credibility and legitimacy to the study by revealing the knowledge of the theoretical, conceptual and methodological topics in this field. Gaps in knowledge in this field, theoretical models and case studies on my topic provided the principles for analysis and critical appraisal. The full

literature report which is conventionally presented has been deviated from, as I had decided to engage with the literature throughout the narrative of my thesis (Taylor, 2008).

1.3.2 Evaluation of the Literature Review

A critical examination of the literature on *system dynamics* provided me with tools which improved my understanding of the complex management problems I observed around me. Hence, in this study, a *qualitative system dynamics* theory-based approach was used with *causal loop diagrams* and *feedback loops* to capture the complexity and dynamic nature of the *decision-making processes, systemic delays* and the *systemic behaviour* on the health organizational environment (Gilson, 2012). The application of system dynamics includes the use of both qualitative and quantitative methods (Sumari et. al, 2014). The study adopts a *qualitative methodology*. Qualitative data is essential to identify *potential variables,* which were obtained from *focus group discussions* conducted for the study. A system dynamics conceptual model was developed using this qualitative data. For example, a model showing the dynamic influences associated with *awakened integral leadership* on the *demand and supply of specialists* with the aim of facilitating the transformation of health leaders was presented, as well as presenting a *workforce planning policy reform process* and *healthcare policy interventions*.

By reviewing unbiased and valid studies, the KZN DOH is identified as an ecosystem which is dynamic and complex. Dynamic complexity describes evolving situations (Sterman, 2000). This means the higher the number of interactions, the more complex the system is, and the higher degree of dynamic complexity it exhibits. Barber (2010), in an extensive study on the Spanish public health sector, explains how the effect of a decrease in the number of experienced and competent senior specialists causes lack of supervision and skills transfer to Registrars with the knock-on effect leading to inexperience and lack of competence of the qualifying specialists, and resultant decreased returns on investing in Registrar Training. Registrars are a specific category of staff, which is defined as medical doctors studying to become specialists. Undeniably, the recent events like the protest action by doctors in KZN as described in the South African Medical Association (SAMA, 2017) in managing healthcare systems with diminishing resources, ever-increasing uncertainties and increasing demands, have become more challenging. Questions of what should be improved, why it should be improved and how it should be improved, are thus critically examined in this study.

1.3.3 Summary of the Literature Review

In the SAHR (2011), delays in Human Resource (HR) Management were also noted. In 2017, the problem remains prevalent. De Savigny and Adam (2009) explained that a system is complex due to its multiplicity of its elements, and their interactions, diversity of behaviours and properties. In the current study, complexity within the Tertiary Hospitals arises due to the multiplicity of elements, for example, leadership mental models, policy and policy decisions, and HR practices. Multiple relationships, interactions among these elements and the ways one affects and impacts the other, influence the behaviour of the health planning system. One of the key elements in KZN DOH Tertiary Hospitals is HR and the shortage of specialists.

1.4 PROBLEM STATEMENT

A decreased supply of specialists to meet the increased burden of disease in forty-six Tertiary Health Services Clinical Specialties and the increased patient load demands have impacted on service delivery in KwaZulu-Natal Department of Health (KZN DOH) South African Health Review, 2011). In 2019, the problem remains pervasive.

1.5 RESEARCH GAP

The objective of human resources planning for health involves determining and allocating the optimal number of doctors with suitable specialist competencies and skills in the correct service component, based on clinical service needs and at the appropriate time. Barber (2010) explained that a dynamic system is essentially in constant disequilibrium. Dynamically adjusting the supply and demand of specialists with the right skill-mix remains a challenge, as this process consists of leaders taking timeous decisions based on HR data, clinical service needs and setting conducive working conditions and compensation schedules. Sumari et al. (2014) identified variables in developing the SD model. Focus group discussions identified variables which lead to the qualitative data being analysed through interview, observation and document analysis. This data helped the researcher to gain a better understanding to the complex real-world situation.

To date there has been no qualitative system dynamics research in SA to address the issues raised. Thus, this study is to take some of these international research findings and

contextualize these in the South African context, and examine the relevance and sustainability of the proposed method in addressing the current gap.

1.6 RESEARCH QUESTIONS

1. What are the underlying systemic factors and their inter-relationships that impact on the four Tertiary Hospitals effective service delivery in the KZN Health System?
2. How do delays cause tensions in policy implementation, governance and decision-making affect the supply and demand of specialists in KZN DOH?
3. In which ways can a system dynamics methodology be used to enable resource allocation to meet escalating patient demands?
4. How does using the qualitative system dynamics approach to envision interventions reconcile policy needs, recruitment and escalating patient demands?

1.7 OUTLINE OF THE THESIS

This overview of the thesis provides an outline of the chapters that follow. Each chapter begins with an introduction, presenting the various sections in the chapter to orientate the reader and enable deeper and significant engagement with the knowledge. The outline also offers a representation of how the knowledge is organised to facilitate in-depth thinking through connecting topics.

1.7.1 Chapter 1

Chapter One provides an orientation to my qualitative system dynamics (SD) approach and the complexity theory methodology. I discuss the rationale of this study, including the motivation that prompted this research. I also present the justification for the integration of the literature within the study in order to explore the dynamic health system behaviours. I sought answers to the critical research questions and issues that disturbed me about the quality of service delivery in the KZN DOH. This chapter concludes with an outline of my thesis.

1.7.2 Chapter 2

In this chapter, in attempting to understand the SA context of the health system, I describe the global, the SA national health system, sphere of government, and the health system dynamics. Thereafter I clarify the key concepts, constructs and terms that I use in my study. I discuss the health system dynamics as well as the position I take with regard to the usage of

these concepts, and explain what is meant by system dynamics. This system dynamics approach is grounded in dynamic complexity, causal loop diagrams, stock flow diagrams, counter-intuitive behaviour and leadership of the tertiary and central hospitals. These terms are clarified in this context. I offer an explanation of the theoretical stance I adopted and then position health system dynamics in the KZN context.

1.7.3 Chapter 3

In Chapter Three, I describe the approach I followed for this enquiry, which comprises the research design as well as the research goals and methods which I employed. The research technique of using FGD and the dynamic hypothesis that underpins this study are explained. The dynamic hypothesis based on Morecroft's growth and under-investment feedback structure is discussed, and the key variables which are adapted to this study, are presented. I also clarify the criteria used for selection of actors represented in the purposive sampling approach. I discuss how the data is generated from the FGD, the use of CLD to verify and analyse this data, and the interpretation of the results with the use of iThink and VUE computer software.

1.7.4 Chapter 4

Chapter Four answers my critical research question, "What are the underlying systemic factors and their inter-relationships that impact on the four Tertiary Hospitals' effective service delivery in the KZN Health System?" Illustrations of the data that I generated with my research participants' FGD, and using CLDs to describe the supply and demand of specialist, are presented. Systemic variables, like delays in decision-making, in the recruitment of specialists, and HR policy implementation that led to the sustained shortage of specialists over time and its impact on service delivery, are explored. Mental models of actors are identified and the dynamic complexity feedback of these interaction and effects on health system behaviour are analysed. Other variables like HR information systems, policy and decision-making, and the inter-relationships and effects of delays are also investigated to improve our understanding of the supply and demand of specialists in KZN.

1.7.5 Chapter 5

In Chapters Five, I analyse the influence of policy in a dynamic complex health ecosystem. I identify which policies in KZN DOH exist, how these policies are applied and how the health system functions. The variety of actors involved in policy design, development and

delivery are described and leverage for change in policy, especially HR policies, explained. The intangible effects of policy change, implementation, rethinking health systems, strengthening policy processes, and the power relationships influencing actors, are discussed. Policy system dynamics feedback, creating policy space to balance relationships, and emergence for policy transfer, agenda setting, policy growth and transformation, are also presented.

1.7.6 Chapter 6

In Chapter Six, I engage with the data from the systemic analysis and variables identified through FGD to answer my critical research questions, which seek insights into how the SD approach can be applied to workforce planning by reconciling policy needs, recruitment and escalating patient demands. I present the stock flow diagram of medical workforce planning and the CLDs that emerged from the data, and through analysis, I produce evidence of how transformative policies can regulate health care provision. Lessons from best practice experiences are examined and leverage points for change using the SD approach, which result in the operational and strategic impact, are described. Thereafter, a model which was adapted from Morecroft (2015) on medical workforce dynamics and a patient care framework, is provided from data generated through the FGD and SD literature surveys.

1.7.7 Chapter 7

Chapter Seven examines another leverage point that influences transformation and equilibrium in the health system, which is leadership and organizational culture. I critically examine the distinction between leaders and managers, engage with the theories of leadership and critique the authentic leadership theory. I provide insights into emergent techniques to become authentic integral leaders and discuss the rationale for choosing authentic integral leadership in this study. As I engaged with the FG data, a CLD of the authentic leader's psychosocial feedback is constituted. I then analyse authentic leadership theories, and share insights. I describe the systemic feedback in response to the authentic leader's characteristics and explain how organizational relationships, organizational culture and work ethics improve. I then reflect on insights and present an emergent awakened integral leadership model.

1.7.8 Chapter 8

In Chapter Eight, insights from the reflective conversations with the FG and my research mentor on awakened integral leader's enactment are presented. I analyse theories on the

evolution of integral leadership (Wilber, 2007) and the emergent awakened leader (Shelton, 2017), and postulate the unfolding of emergent consciousness and self-organizing organizations. I examine the prevailing world-view and assumptions of leadership and the perspective of deepening consciousness, systemic dynamics, enacting whole systems thinking, reflective thinking and interconnections with transformation strategies. I present data identified from FGD on organizational variables, which require awakened integral leaders to foster organizational relations and social cohesion, resulting in improved governance in tertiary hospitals. I engage with the data on systemic relational interconnections of ethical enactment in policy design, curriculum reorganization and HR practices, and the correlation between the awakened integral leader's inner state and these elements in the health ecosystem. I discuss the connectivity of these systemic behaviours with the emergence of integral health teams. I propose that for ethical enactment to be effective, paradigmatic reductionist thinking, egocentric consciousness and limiting health care practices can be transformed into constructing whole system thinking with integrated participative consciousness, where transdisciplinary integral teams emerge.

1.7.9 Chapter 9

In this concluding chapter, I present an overview of my research and describe the personal and professional insights of my qualitative system dynamics study. I explain reflections from my experiences and discuss my discovery that transformation and leadership are inextricably connected. I make reference to the insights that emerged and the significance of this knowledge for expanding my consciousness and improving my leadership practice. Reference is also made to the nuanced ethnographic and self-study frameworks related to my study. I reflect on my experience of applying the qualitative system dynamics methodology, dynamic complexity theory, complexity thinking theory, emotional and spiritual intelligence possibilities, to become an awakened integral leader. I end this chapter and study by discussing how it has contributed to the field of awakened integral leadership, the system dynamics implications for transforming health systems and the possibilities for extending these transformative approaches.

CONCLUSION

In this chapter, I introduced and described the dynamic complexity of the health system and from this enquiry noted that even though there are global advances of the public health system, health care provision is in crisis. I explained my motivation and rationale for this study. The research gap, research questions and methodology were developed from the

literature reviews on organizational behaviour, governance, health systems strengthening and transformative leadership. Organizational behaviour revealed that systemic tension exists between policy implementation strategies in National DOH Plan and implementation of the KZN DOH HR Plan. This study seeks to address the existential question of how we can apply qualitative system dynamics (SD) approach to understand and diffuse these types of tensions within managed systems.

In the next chapter a discussion on understanding the context of the health system and the SD approach to contextualizing dynamic complexity in KZN DOH is conceptualized. An explanation on the analysis of the causative effects of the identified problems, the relationships among variables and the dynamic complexities arising in the system is presented. This SD approach improved our understanding of the problematic situations with a view to seeking appropriate interventions.

CHAPTER 2

UNDERSTANDING THE CONTEXT OF
THE HEALTH SYSTEM

2.1 INTRODUCTION

In Chapter 1, my motivation for this study and a description of the dynamic complexity of the health system were explained. From the literature review, variables like hospital management, delays in decision-making, delays in HR processes and supply chain procedures, were recognized as producing instability and fluctuations in the health system. In this chapter, based on the system dynamics (SD) theoretical framework, I examined the underlying systemic factors and their inter-relationships that impact on the four Tertiary Hospitals' effective service delivery in the KZN Health System.

2.2 THE CONTEXT OF THE HEALTH SYSTEM

The health system is an essential service which involves fundamental processes of organising, coordinating and delivering health care services. Health services are delivered through this system, which is considered to be a social system with elements that interact with the populace and with other actors, and is located in a specific context (Gilson, 2003). The population is made up of patients requiring health care based on their health needs; consumers who anticipate quality treatment; taxpayers as the vital stakeholder who invests in the health system, and citizens who constitutionally expect equitable use of health care services as a basic human right and are co-creators of health in their quest for well-being and encouraging healthy behaviours (Frenk, 2010). The fundamental purpose of actors and their collaboration in social system processes involves liaising harmoniously with the numerous systemic elements by managing and implementing directives which result in non-linear relationships.

Frenk (1994) clarified that communications and systemic relationships within the dynamic complexity, among various elements and actors in the health system, provide for health service development and delivery. These collaborative relationships within the health system and among other service providers also contribute towards vital comprehensive societal growth (Gilson, 2003). Actors involved in health systems provide supply or deliver comprehensive care, clinical expertise, technological advice and appropriate referrals with

the objective to promote, treat, cure and rehabilitate health at a physical, mental, emotional, spiritual and social level.

These multidimensional interactions among the elements and/or actors' behaviour are influenced by their varying beliefs, values, mental models, norms, and roles. The structure of any health system also interacts with the organisational vision, policy, legal, financing, clinical and service delivery frameworks (Frenk, 1994). Differing worldviews among actors results in counter-intuitive behaviour, which leads to the emergence of dynamic equilibria. Forrester (1975) describes counter-intuitive behaviour as decisions which may aggravate feedback from other stakeholders who try to find means to restore balance in the system. Furthermore, Meadows (1982) explained that policy resistance, delayed, weak or unsuccessful interventions, are the result of these unanticipated system dynamics reacting to counter-intuitive behaviour to the intervention.

2.3 THE SOUTH AFRICAN HEALTH SYSTEM

Health systems design, policies, practices, structures and leadership styles are shaped by historical, socio-political contexts. Decision-making and/ or policy choices which are made by health care leaders are reliant on this path-dependent context. Consequently, understanding context clarifies how the health system chooses to either respond or react to service delivery opportunities and health system constraints. The inherited inequitable and fragmented services in the South African (SA) health care system has been moulded by the apartheid socio-political context. These inequities are evident in the vast disparities that occur in services standards, financial, technological and human resources availability offered by the public and private health sectors (Negotiated Service Delivery Agreement, 2010). Systemic fragmentation resulted from health policy decisions which are made, for example centralised and decentralised structures, which dictated the roles and responsibilities of various spheres of governance (Gilson, 2012).

Resource inequities and systemic fragmentation in SA result in imbalanced health care access, as the majority indigent population is dependent on the public health care system. Inequality is also evident between rural infrastructure underdevelopment and urban development. Financial and human resource distributions, for instance, the numbers of key health professionals compared to the private sector, are disproportionately lower in the public health sector. These inequities are clear, as the estimated public sector per capita spends R3, 183 as compared to R14, 186 in the private sector (SAHR, 2016).

In 2013, the number of public sector medical specialists was 11.4 specialists to 100 000 people, compared to 86.5 per 100 000 in the private sector (Econex, 2013). Health service delivery outcomes are influenced by the type of leadership and governance that motivates public and private health practitioners. Public health sector outcomes are subjected to political stakeholders and policymakers' decisions, whereas the shareholder values determine private sector outcomes. The ratio of patient to doctor reveals this difference: for instance, there are about 4 219 patients attended to by a general doctor in the public sector, compared to 243 patients treated by a general doctor in the private sector. Moreover, these disparities in doctor patient ratio are compounded by poor governmental funding of the public health sector. Likewise, the resource discrepancies have significantly contributed to the poor health status of the vulnerable national population (SAHR, 2016).

To overcome these gross disparities in health service delivery and to address equitable access and cost effective services, in 1994 the SA national health strategic policy decision was to establish a District Health System (DHS) through implementing a Primary Health Care (PHC) Approach as the core function of the SA healthcare system (SA Department of Health, 1997). The PHC approach is focused on preventative, promotive, curative and rehabilitative health care principles, which are delivered at home, in clinics, district hospitals and by mobile clinics. Notwithstanding this policy decision, the service delivery structure still tends to be curative in nature (Health Services Research Network, 2014). The health services expectation of the majority population remains hospicentric. Although the PHC is more cost effective, as compared to hospital high-cost care, patients choose to go to hospitals, which results in no adherence to any referral system, and this implies that many patients are seen at an inappropriate level of care. Hospital services costs more as patients are usually attended to by specialists in high-tech facilities, which further contributes to consumer cost escalation.

Another policy directive is the White paper on Transformation of the Health System (HS) in South Africa (1997), which outlines the principles of the Reconstruction and Development Programme (RDP) of health services. One of these RDP principles is to provide an integrated package of essential PHC services as the first point of contact in the health system, and that these services are accessible to the whole population.

In keeping with other principles of the RDP, restructuring the health care system is based on PHC services, which emphasises effective referral systems at the primary, secondary and

tertiary levels of care. These levels of care are described as services offered from: (i) basic services to incremental complex services at primary level in clinics, district hospitals and by mobile clinics, and (ii) at secondary level in regional hospitals and tertiary care levels at tertiary hospitals (White Paper Transformation HS in SA, 1997). Health professionals with appropriate skills at PHC level deal with common conditions and implement rapid responses or they ensure an appropriate referral to the next higher level of care.

An implementation strategy as stated in the SA (1997) White Paper on Transformation of Health System, is developing health professionals appropriate to the level of care, with relevant skills and competencies. Upskilling and reskilling health professionals remain essential to ensure provision of relevant competencies to deliver approved health service packages at various levels of health care. Therefore, training institutions have a vital role in educating health professionals by offering suitable, PHC, multidisciplinary community-problem and outcome-based education programmes, which are aligned to and accredited by the National Qualifications Framework (NQF). The aim of these educational programmes should be to recruit and develop competent health professionals who are able to respond appropriately to the health needs of the people they serve at the relevant level of care. Since 1994, patients' access to a health facility has been achieved, but quality of care, human resources management and infrastructure still require improvement (NSDA, 2014).

2. 4 HEALTH SYSTEM DYNAMICS IN THE SOUTH AFRICAN CONTEXT

Olmen et al. (2012) described health systems as responding to opportunities and constraints in collaboration with diverse stakeholders. These researchers further explained that to understand the context of health systems implies analysing behavioural relations that occur within a framework which consists of elements and their dynamic interactions. They argue that these elements within the health system framework, namely: leadership and governance structures inter-relate with goals and outcomes, values and principles, and the service delivery needs of the population. Similarly, other systemic elements which interact in this framework that Olmen et al. (2012) referred to, are the organization of resources, for example finances, human resources, infrastructure and supplies, knowledge and information. These interactions among the elements determine health system dynamics behaviour. In Figure 1, Olmen (2012) used this framework to analyse and understand the context of Health System Dynamics.
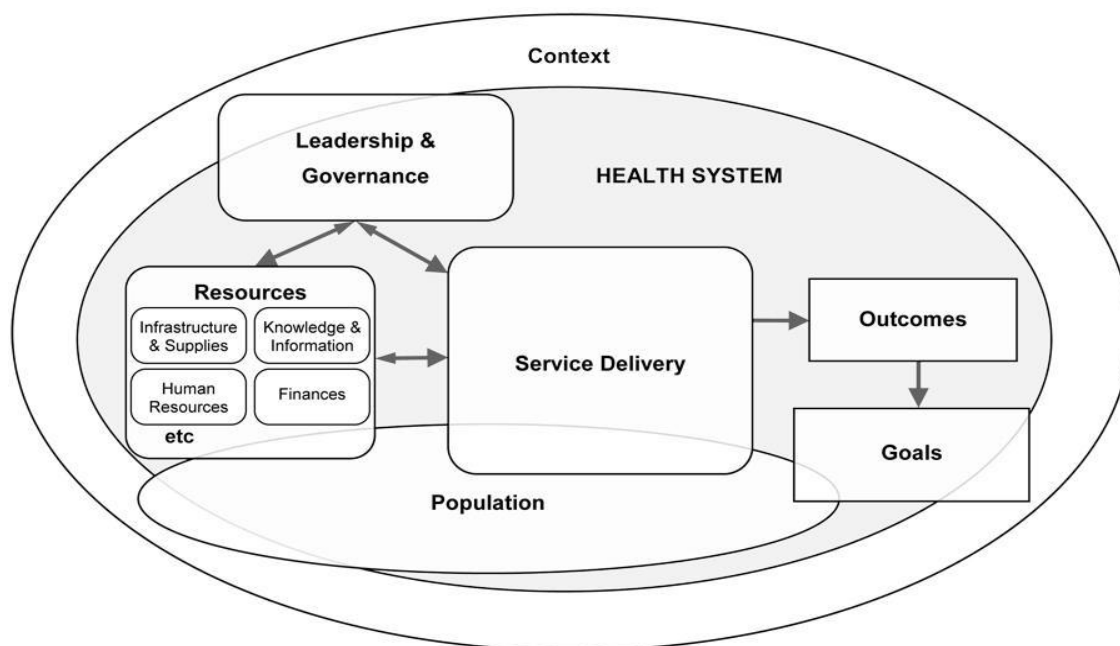
Figure 1: The health system dynamics framework (Olmen et al., 2012)

Health systems are viable (Reynolds, 2010), open systems (Olmen, 2012) that deliver health services within a context, by interacting elements and utilising human as well as material resources through adapting to environmental changes, created as a result of imbalances in the health ecosystem. Another element in the health system is leadership and governance, including the goal of ensuring that health service delivery responds to identified gaps in the population's health needs (Reynolds, 2010). According to Sterman (2000), interactions between the elements form feedback loops and contribute to cause and effect links with interdependent systemic processes. Feedback loops capture dominant elements through visual representation to improve understanding of systemic interactions within a specific framework. The most basic form of health systems framework analysis can be used to systematically examine an existing situation or particular problems at different levels, national, provincial, district and health care facility levels (Gilson, 2012).
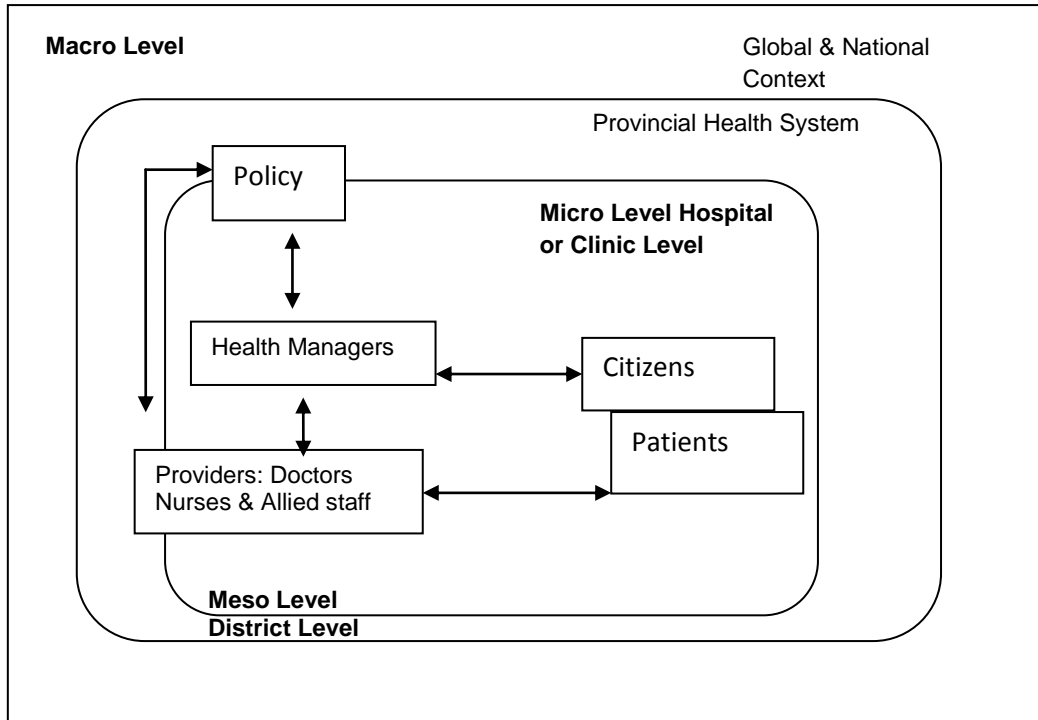
Figure 2: The different levels of health systems (Gilson, 2012)

In Figure 2, of the health system is explained by Fulop et al. (2001) and Van Damme et al. (2011), as operating across levels, the Macrosystem at global and national level, Mesosystem at provincial and district level and Microsystem at local or hospital and clinic level. These Macrosystems, Mesosystems and Microsystems can be referred to as subsystems of the heath system.

2.5 THE SPHERES OF THE SOUTH AFRICAN GOVERNMENT

The spheres or levels of the South African (SA) Government and Assigned Functions are represented in Figure 3:

National	Macrosystem- National: Makes policy and sets priorities through legislation, norms and standards or political statements.
Provincial	Mesosystem - Provinces: Delivers school education, health, social welfare. Generally funds national priorities.
Local	Microsystem - Municipalities: Delivers water, sanitation, refuse removal. Has more autonomy regarding what their resources are spent on.

Figure 3: The Spheres of SA Government and Assigned Functions (South African Government, 2016)

There is one national government in SA, with nine provincial departments and 257 municipalities.

POPULATION

Population per Province

1. Limpopo 5,404, 868
2. Mpumalanga 4,039, 939
3. Gauteng 12,272,263
4. North West 3,509, 953
5. Free State 2, 745, 590
6. KZN 10,267, 300
7. E. Cape 6, 562, 053
8. W. Cape 5,822,634
9. N. Cape 1,145,861
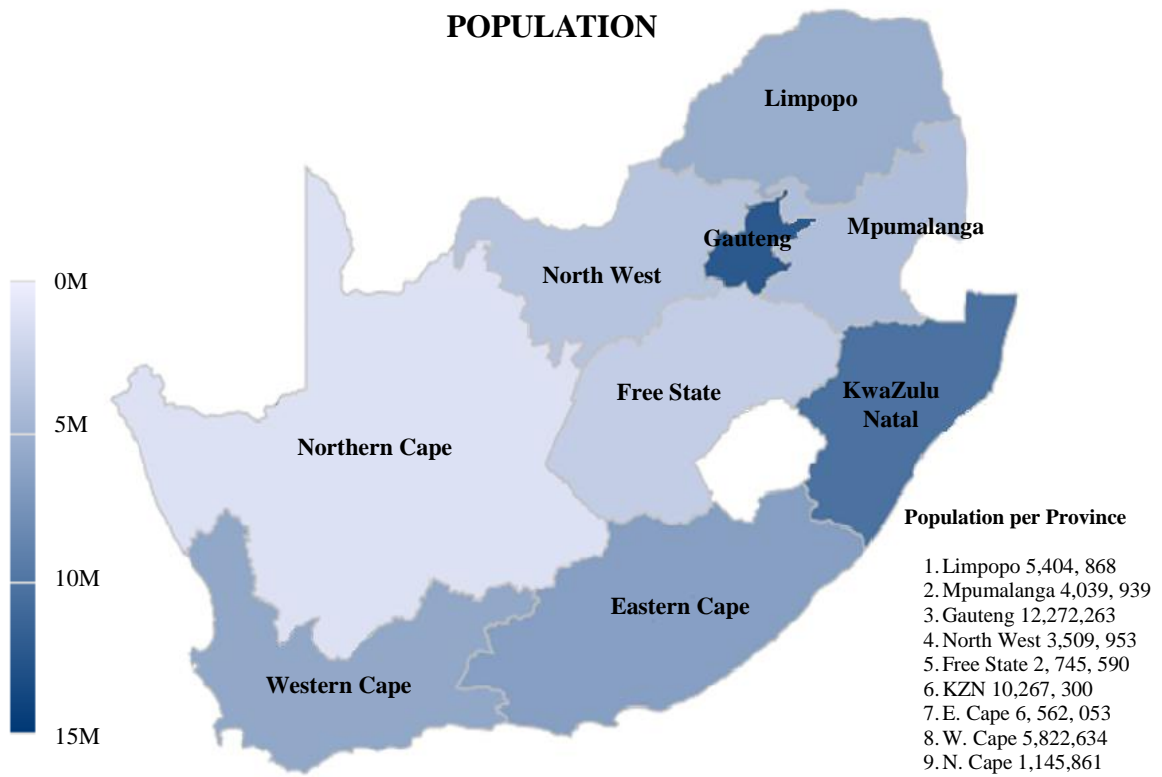
Figure 4: Map of South Africa with the Nine Provinces

(Adapted from Statistics SA, 2011)

The map of South Africa outlines the nine provinces and the population per province. Each province has several public service departments, and one of these departments is the Department of Health.
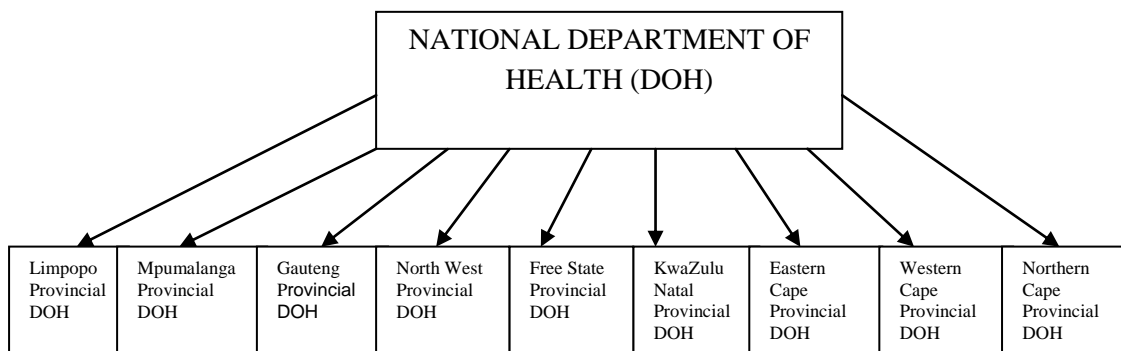
Figure 5: National Department of Health Structure and Nine Provinces

(SA Government 2016)

The National Department of Health (NDOH), which is the Macrosystem, provides the policy and strategic direction for each province. Provinces are regarded as the Mesosystem and have the mandate to deliver on the policy directives set by NDOH.
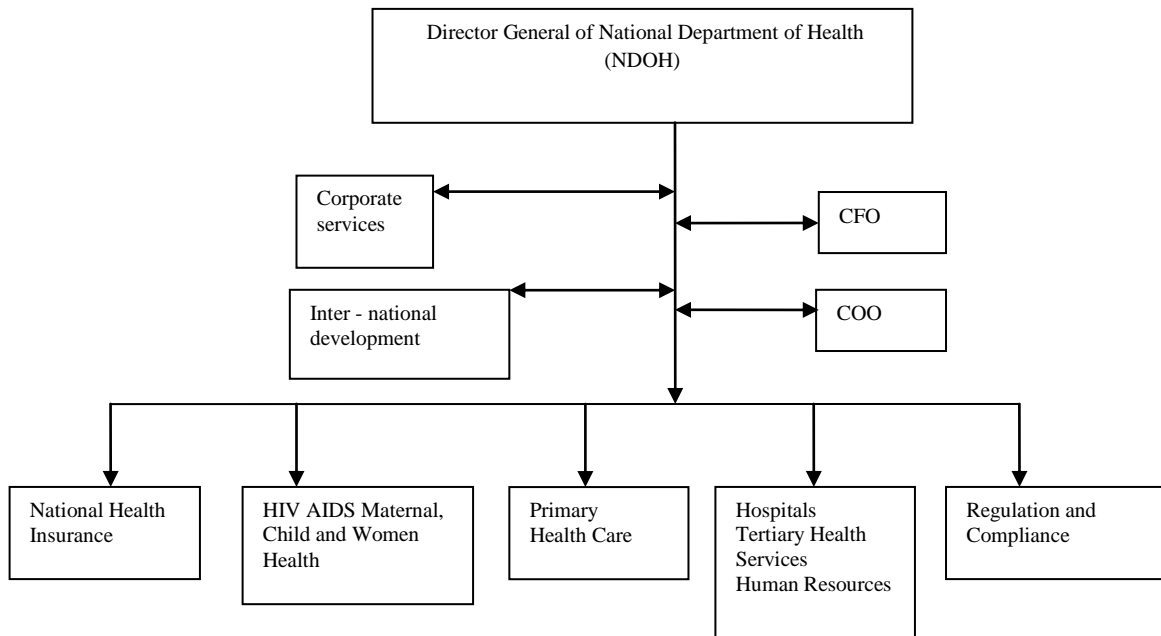
Figure 6: Components of National Department of Health

(NDOH Annual Performance Plan, 2015)

(Chief Finance Officer – CFO); (Chief Operating Officer – COO)

Each NDOH component or element is replicated at a Provincial Department of Health (PDOH) level. Sub-systems within the health system, for example hospitals, as described in the SA National Department of Health Policy (2013), are categorised according to their complexity of service provision. District hospitals are at a Micro local PHC level, Regional hospitals at a Meso provincial generalised level, Tertiary hospitals are also at a Meso provincial level; however, services are at a specialised level, and Central Hospitals at a Macro national, highly specialised and academic teaching level.
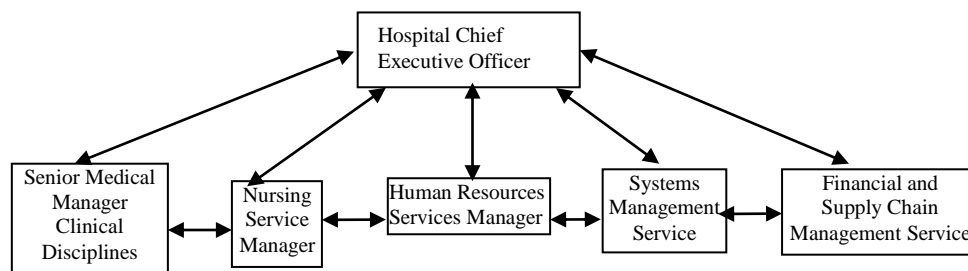
Figure 7: Structure of Hospitals (KZN DOH Policy for Hospital Governance, 2007)

Service delivery and different functions of the hospital system occur at these various levels or sub-systems through interconnections and balancing policies, governance, strategies, resource allocation and coordination across the sub-systems. One of these sub-systems within the hospital is human resources (HR). Dasari (2013) highlighted the vital significance of human resources in the health system as human capital whose knowledge, training, skills and trustworthiness add value to the organisation's income and total assets. Morecroft (2015) explained that the health system is dependent on human capital as health service provision is labour intensive. Thus, human capital is a priority and organisations need to quantify the knowledge, skills, talent and competencies of its employees and the workforce.

2.6 CLARIFICATION OF SYSTEM DYNAMICS CONCEPTS

Explanations of the key concepts used in this study are presented, to ensure uniform understanding.

2.6.1 System Dynamics

Morecroft (2015) described system dynamics as provoking one to think in a different way about the social world, that is, more broadly and systemically. This change in thinking to a more systemic conceptualisation necessitates understanding the organisation of HR, together with its various interactions and perceptions, and the multiple intentions, goals and interventions that reinforce the various inter-relations within a dynamic system.

2.6.2 Dynamic Complexity

According to Sterman (2000), dynamic complexity is governed by feedback embedded in an organisation and social context with organisational structures, culture, governance, system behaviour and inter-relationships among actors. Dynamic complexity refers to evolving situations. This means the higher the number of interactions, the more complex the system is and the higher degree of dynamic complexity the system exhibits.

2.6.3 Causal Loop Diagrams (CLD)

A causal loop diagram is a graphical tool used in system dynamics approach, that enables the visualisation of causal relationships between variables in a causal model, for example, causes of the problems, feedback, and relationships among variables. Feedback loops display systemic linkages among variables, which can be either reinforcing or balancing loops. CLDs can help to explain the role of such feedback loops within a given system. Also, CLDs are often developed in a participatory approach (Health Service Research Network, 2014). The drawings can be further developed by categorising the types of variables and quantifying the relationships between variables to form a stock and flow diagram (Sterman, 2000; Morecroft, 2015).

2.6.4 Stock and Flow Diagrams

Sterman (2000) explains stock and flow diagrams as quantitative system dynamics tools used for illustrating stocks for instance inventories of material, financial resources or assets, populations and information. Flow refers to the increase or decrease of these stocks. Stock and flow diagrams demonstrate accumulation or depletion of stocks and is used in system dynamics' model-based policy analysis in a simulated, dynamic environment. Stock and flow diagrams explicitly incorporate feedback to understand complex system behavior and capture non-linear dynamics.

2.6.5 Counterintuitive Behaviour

Forrester (1971) clarified that counter-intuitive behaviour involves differing paradigms and decisions which may aggravate reactions by others seeking to restore the balance in the system. In complex systems, delays in a leader's decision-making, divergent stakeholders' mental models, influence and cause and effect, and are regarded as distant in time and space, whereas in counter-intuitive behaviour, stakeholders tend to look for causes near the events they seek to explain. Also, in counter-intuitive behaviour, our attention is drawn to the symptoms of difficulty rather than the underlying cause or high-leverage policies influencing change, which are often not obvious among interacting stakeholders.

2.6.6 Tertiary/Central Health Services

Tertiary and Central Health Services comprise Tertiary and Central hospitals which are the most complex sub-systems in which the provision of Health Services is a comprehensive set of professional Specialist-led services with unique, complex and expensive technologies, provided to a defined geographical catchment population.

2.7 HEALTH SYSTEM DYNAMICS IN THE KWAZULU-NATAL CONTEXT

To conceptualise and analyse the causative effects of the problems, the relationships among variables and the dynamic complexities arising in the four Tertiary hospitals KwaZulu-Natal (KZN) Health System, a qualitative System Dynamics (SD) approach is used in this study. The SD approach would improve our understanding of the problematic situations with a view to seeking appropriate interventions.

2.8 THEORETICAL STANCE
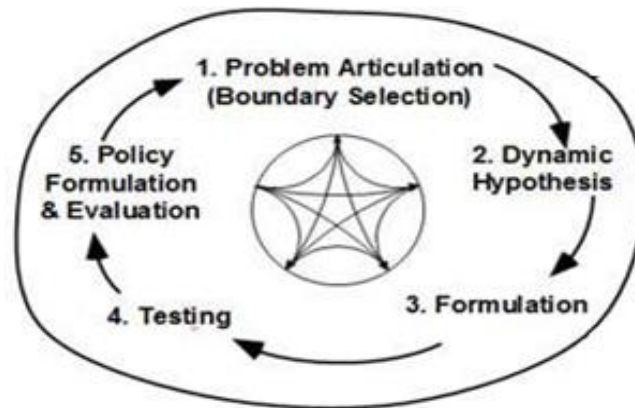
Figure 8: The System Dynamics Approach (Sterman, 2000)

System dynamic modelling offers a reliable alternative (Sumari et al., 2014) to using experimental 'try it and see' approaches simulated to service and system design. SD approach offers a risk-free environment where ideas can be systematically tried out without the time, cost and risk involved in trying it in real, live contexts. Furthermore, these techniques make it possible to objectively better understand complex healthcare eco-system interactions, and safely explore 'what if' scenarios to quantify risk and predict future performance (Masnick, 2010).

The Health Services Network (2014) explained the advantages of applying the system dynamics modelling approaches in the United Kingdom (UK). This SD model has been effectively used in the UK to enable healthcare decision-makers, operations managers and clinicians in the National Health Service (NHS), to identify best practice prototypes and develop repeatable models of care. The results of using SD influenced commissioning of services by providing an evidence base for policy changes, reviewing existing healthcare structures (Swanson et al, 2012). The SD approach assisted in decisions, whether to maintain, renovate or dismantle a resource, for example, a hospital, service or care pathway. Other benefits of using the SD approach in the NHS in the UK was to embark on service cost analysis and assess variable cost against projected demand; calculate workforce skill mix and undertake forecasting against projected demand; construct the business case for a specialist pathway reform, and redesign and evaluate the impact of funding delays (Masnick, 2010).

According to Morecroft (2015), system dynamics involves two contrasting viewpoints which people express on policy and strategy development, that is, an event-oriented approach and a feedback approach. Event-oriented thinking is described by Morecroft (2015) as pragmatic, action-oriented thinking, which is appealingly simple and frequently biased. Moreover, the rational style in event-oriented thinking is linear, and is referred to as being from problem-as-event to solution-as-fix. When

a problem presents, there are divergent views among stakeholders in terms of identifying a significant common goal and an unpredictable existing situation (Otto & Struben, 2004). Leaders responsible for achieving the common goal arrive at a solution through decision-making and action and then move on to the next problem. Most organisational leaders use event-oriented thinking, which is pervasive and convincing. This type of thinking can lead to rapid, influential and decisive action, although there are limitations to this open-loop, fire-fighting mode of intervention (Morecroft, 2015).

Feedback systems thinking approach (Senge, 1997) varies from event-oriented thinking because the systemic leader attempts to find solutions that are 'sympathetic' with their organisational and social environment. With this type of feedback systems thinking approach, problems are not caused by events, and solutions are not executed in a void. Rather, in feedback systems thinking approach, Morecroft (2015) explained that problems and solutions co-exist and are interdependent.

Senge (1990) also pointed out that feedback systems thinking is a 'shift of mind', an innovative approach of understanding the business and social world. Feedback systems thinking is an alternative solution to silo mentalities and narrow functional perspectives, which are repeatedly adopted by organisations with the inclination to whittle problems down for analysis. Fundamentally, in feedback systems, dynamics thinking problems and solutions are regarded as inter-related.

Morecroft (2015) explained the typical thinking style in feedback systems thinking is circular. This thinking style begins with a problem, seeking and implementing a solution and then reviewing the problem. Essentially, problems do not just originate from nowhere or demand a solution. Problems are a consequence of the cumulative effect of previous decisions and actions, sometimes intentional, but often with hidden side effects. Usually a problem presents itself as a discrepancy between a vital goal and the current situation (Van der Heijden et al, 2010).

To achieve the goal, leaders make decisions resulting in actions which effect change of the current situation to arrive at a solution. When plans are implemented, then the current situation changes and moves closer to achieving the goal; the extent of discrepancy is reduced and the problem is relieved. This system dynamics feedback response is not regarded as a once-and-for-all fix. The iterative approach (Homer & Hirsch, 2006) in SD is part of a continual non-linear process of changing the situation in order to achieve an agreed goal/s. Besides, there is acknowledgment that many variables also influence the current situation. Likewise, there are other stakeholders, with other goals, facing other situations and taking their own corrective action. The performance of the organisation as a whole arises from the interplay of these interlocking feedback processes (Morecroft, 2015).

2.9 CONTEXTUALIZING DYNAMIC COMPLEXITY IN KZN DOH

According to Sterman (2000), a system's complexity can be described as elements of the system in terms of the quantity, connectivity or interrelationships between the elements and functionality of the system. Characteristics of a complex system are dynamic due to the robust, timely or delayed interactions and feedback among various actors within the system (Rwashana et al., 2014). When there are delayed, behavioural reactions can be counter-intuitive and difficult to predict (Sterman, 2006). Dynamic complexity describes evolving situations (Swanson et al., 2012). This means that the higher the number of interactions, the more complex the system is and the higher the degree of dynamic complexity it exhibits. Applying Sterman's (2000) description of complex systems to the present study, the KZN DOH can be defined as a complex system with inter-functional connections of interacting elements, where various actors interact in a complex structure among seventy-two hospitals at District, Regional, Tertiary and Central Hospitals.

De Savigny and Adam (2009) explain that the multiplicity of elements, their interactions, range of activities and the properties in a system makes the system complex. In this study, complexity within the Tertiary Hospitals arises due to the multiplicity of elements, namely, HR, finance, medical equipment, technology, clinical services, governance and information.

Various relationships and interactions among these elements, then affect and impact on one other, influence the behaviour of the health planning system (Atkinson, et al., 2015). In this study, the element of focus in the KZN DOH Tertiary Hospitals is HR and the shortage of specialists. The shortage of specialists is generally attributed to the following: inadequate planning or governance directives to enter the profession, policy implementation or organisational culture. These causative factors will be analysed in this study.

The NDOH Policy (2013) notes that health professional leaders in Tertiary Hospitals, known as Senior Management Teams (SMT), are overwhelmed with operational issues, crisis management and administrative tasks, which result in little time spent on planning, delivering on the mission and policy imperatives or practising the core values of the KZN DOH. Although challenges facing health care today are of great concern, a crisis can also lead to breakthrough and transformation. Patients and clinicians are more aware of their basic human rights to quality health care and better working conditions and are demanding that the essence of healing be restored (Doherty & Gilson, 2011). A number of methodological approaches such as planning methods based on needs and demand, quantitative methods and mixed methods, have been applied to conceptualise opportunities for change in health care system planning (Barber, 2010; Morecroft, 2015; Creswell, 2014).

The use of qualitative system dynamics approach in this study will provide insight into the behavioural dynamics of the KZN DOH, the decision-making processes, the complex structures of the system, policies, complex managerial problems, and the strategies to prevent managerial crises. The goal is to find high leverage management policies and organisational structures which can achieve priorities and contribute to new knowledge and change in policy implementation processes. Sterman (2000) describes the system dynamics approach as one which acknowledges that dynamic complexity is rooted in an organisational environment and societal context, with organisational structures, culture, governance, system behaviour and inter-relationships among actors. Hirsch and Homer (2006) explain how lengthy delays between causes and effects and that several conflicting goals cause problems in dynamically complex systems. These problems make interventions difficult in terms of knowing how, where, and when to intervene. Most interventions have unplanned consequences and will cause resistance or destabilize the system by conflicting interests or due to limited resources or capacities (Swanson, 2012).

2.10 CONCLUSION

In this chapter, I used the elements of the SD theoretical framework to improve my understanding of the context of the health system and, in particular, health system dynamics in the South African health system. Concepts of system dynamics were clarified, and dynamic complexity in KZN DOH contextualised.

In the following chapter, I discuss the research design and methodology used in my thesis. I describe the system dynamics approach I used for this analysis, which includes the research design as well as the research methods that I engaged.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In the previous chapter, I examined the underlying systemic factors and their inter-relationships that impact on the effective service delivery in the Health System. Based on elements of the SD theoretical framework, the context and dynamic complexity of the SA National and KZN Provincial health system were clarified.

My choice of the SD theoretical model used in this study was informed by the research questions identified. Having evolved as a health activist in the South African Health Workers Congress (SAHWCO), pre-democracy (1994) in SA, and as an advocate for human rights and in particular for patients' rights to presently being an advisor in health strategy, the quest for significance and purpose in life's journey compelled me to seek answers to my critical research questions. These questions characterised the problematic situation in KZN tertiary hospitals with regard to recruitment of specialists and the viability and effectiveness of patient care. In this chapter, I discuss the research design and methodology that underpins my qualitative SD study.

3.2 RESEARCH GOALS

My research goals required an in-depth understanding of the underlying systemic factors and their inter-relationships, that impacted on the four tertiary hospitals and their service delivery in the KZN health system. However, I was not satisfied with merely understanding the systemic factors and inter-relationships that influenced effective tertiary health service delivery, I deeply desired to identify the gaps in performance and how the delays cause tensions in policy implementation, governance and decision-making affected the supply and demand of specialists in KZN DOH. I also wanted to acquire insight into the ways in which the system dynamics methodology can be used to enable resource allocation to meet escalating patient demands. Furthermore, my experiential learnings in the health system for growth, development and improvement, inspired me to use the system dynamics approach to envision interventions that would reconcile policy needs, recruitment and escalating patient demands.

I reflected on the transformative and explanatory paradigm (Mertens, 2010) to direct my research, because I wanted to understand the causal theory of how the observed behaviour was generated through a turbulent social system in the context of the KZN DOH.

3.3 RESEARCH METHODOLOGY

The SD approach and the complexity theory methodology (Sterman, 2000) was adapted to hypothesize and investigate the causative effects of the challenges, the relationships among variables and the dynamic complexities arising in the health system. This qualitative SD research approach was used to critically examine attitudes, opinions and behaviour in the KZN DOH ecosystem (Kothari, 2004).

3.3.1 Research Technique

The research technique used was focus group (FG) interviews, with dialogue to specifically identify variables and the verification of data collected. The FG understanding of the challenging situations and transformative interventions were sought using the SD approach (Sterman, 2000). According to Reynolds (2010), the SD approach involves systemic processes like rational thinking about organisational behaviour and simulating challenging circumstances, through developing causal loop diagrams (CLD) that enhance visualising how the elements fit together, interact and change over time. Thus this SD approach was used to deepen our understanding of the problematic situation in the KZN tertiary hospitals. Feedback loops in CLD; feedback loop structures and time delays that affect dynamic system behaviour, have been utilised to understand the context, challenges, systemic relationships, decision-making processes which impact of dynamic complexity and the leverage points for organisational transformation (Sterman, 2000; Meadows, 1997).

3.3.2 Dynamic Hypothesis

As organisational resource and policy challenges are central to my study, I surveyed literature for theories that explained system expansion or limitation and its effects on KZN DOH dynamics and growth. Morecroft (2015) identified that most organisational limitations occur internally and are enforced by managerial policies or lack of coordination. In addition, he described organisational expansion as growth in resources or increased distribution of services. The lack of coordination among these organisational elements has been developed into a systemic framework which Morecroft (2015) calls the Growth and Underinvestment Model. Thus, the dynamic hypothesis used in my study was based on this Morecroft Growth and Underinvestment Model (Morecroft, 2015).
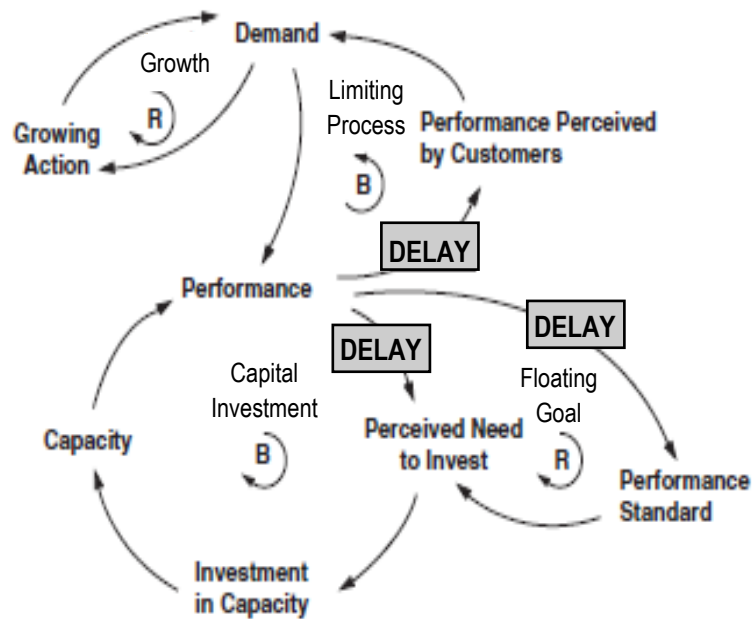
Figure 9: Growth and Underinvestment Feedback Structure (Adapted from Morecroft, 2015)

In Figure 9, at the top of the Morecroft's growth and underinvestment model is a reinforcing growth feedback loop formed by the links between demand and growing action.

In this current study, application of Morecroft's (2015) growing action as described, has been observed in KZN DOH as the expansion of services, which led to increased patient demands, affecting health systemic behaviour and in turn justifying further expansion, for example, of PHC. Further explanation of this model is on the right in the figure, a limiting process that depends on performance of services and which indicates value or lack thereof, such as patients' perceptions of PHC delivery in this province. Moreover, growing performance of services correlates with access, quality, reliability, value for money, and patient satisfaction; as a result, it attracts more patients.

Service performance and patient satisfaction depend on the balance between demand and HR capacity. When an organisation's capacity to provide services decreases, for instance, and is deficient in-patient demand, then performance will deteriorate. In time, service performance as perceived by patients will drop too and therefore limit demand. Conversely, if there is suitable HR capacity then, demand will carry on growing under the influence of the growth feedback loop. Similarly, a balancing loop for capital investment is shown on the lower left of Figure 9. This loop connects organisational performance, management's perceived need to invest, investment in capacity and developing capacity. Thus, this balancing loop nurtures growth by striving for sufficient capacity to maintain satisfactory health service performance (Morecroft, 2015).

Observations by the FG interviews noted that dynamic complexity of organisational structures and governance sub-systems is entrenched in the KZN DOH, which influences the system behaviour and

inter-relationships among actors. In this turbulent and evolving health ecosystem, the dynamic complexity revealed a high number of interactions among the sub-systems, which illustrated that the more complex the system is, the higher degree of dynamic complexity the system displays (Sterman, 2000).

3.3.3 Sampling

A purposive sampling approach (Kothari, 2004), consisting of a wide variety of actors, including both decision-makers and policymakers representing various roles, was used. Currently the number of actors varies among decision-makers and policy makers, which is approximately twenty to thirty. The role of the actors in the formulation and implementation of policy and health strategy was the criterion used to determine sample size, which constituted eighteen actors.

UKZN – University of KwaZulu Natal
HR – Human Resources
CC – Critical Care
PAEDS - Paediatrics
O&G – Obstetrics & Gynaecology
ONCO - Oncology
Mx. - Management
TH – Tertiary Hospitals
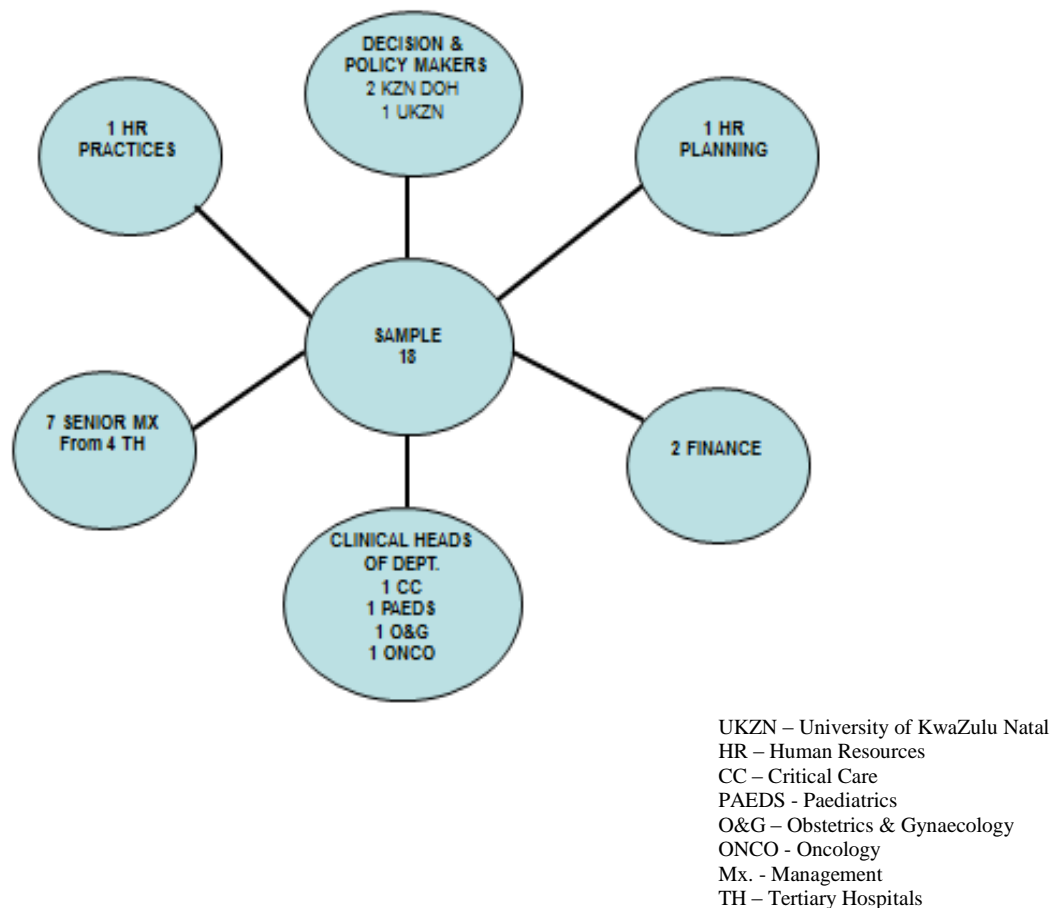
Figure 10: Diagrammatic Representation of the Sample

Figure 10 represents the following roles in the sample: the decision-makers and policymakers consisted of two representatives from KZN DOH and one from UKZN; one from HR Planning and one from HR Practice; two from Finance; four Clinicians/Heads of Department representing Critical Care, Paediatrics, Obstetrics and Gynaecology and Oncology respectively, and seven Senior

Managers from the four Tertiary Hospitals. Thus the total number of participants in the focus group was eighteen. Ethical approval was obtained from KZN DOH Research Review Committee. Being mindful of my ethical responsibility to my research participants, consent forms were prepared to protect and ensure the confidentiality, dignity and welfare of all. Participants were asked to sign a consent form and were informed that participation was voluntary and that they could opt out at any time. Likewise, to ensure anonymity, initials rather than names of individuals were used. Ten focus group discussions (FGD) were facilitated by the researcher, and completed the questionnaire referred to in appendix 3.

3.3.4 Data Collection

These FGDs, involving actors from the sample, were held in the four tertiary hospitals and at the provincial office, as well as formal meetings with minutes, or organized as interactive sessions were conducted. FGDs were facilitated to collect data on the health ecosystem context, policy processes, HR strategies, decision-making processes and relationships among actors, policy implementation and the system behaviour. This data, which was collected from the FGs, where the conversations and dialogues were noted, and systemic issues was used to codesign CLD. The group's awareness of policies and CLD using identified variables, linkages and flow of information among actors from these FGs, were developed. The FG verified the CLD and iterations, where needed, were redeveloped. Data collected were associated with Sterman's (2000) SD model, which showed that positive feedback between expectations and perceptions inhibited the acknowledgment of anomalies, and that emergence of new paradigms became evident.

The case study method to identify the source of the problem, and reflect on the mental models of the actors and the information gathered, was used to compare their understandings of the research problem (Kothari, 2004).

HR policies were used to qualitatively analyse data (Creswell, 2014) from the HR officials' mental models. For example, it was noted that these policies were misinterpreted and that the mental model influenced the source of the problem, that is, the shortage of specialists in KZN DOH. Reflections on the mental models of the actors and the information gathered in CLD were used to compare their understandings of the problem (Kothari, 2004).

3.3.4.1 Counter-intuitive Behaviour

Another observation made in the FG was counter-intuitive behaviour amongst stakeholders. For example, HR officials and specialists had differing understandings of the HR investment capacity. These opposing worldviews among actors result in counter-intuitive behaviour, that can be described

as provoking reactions by other actors and leading to the emergence of dynamic equilibria (Forrester, 1975). Counter-intuitive behaviour involves differing paradigms affecting decision-making, policy resistance, delays and dynamic systemic feedback (Meadows, 1982). Data generated from FGD reflected that these actors' counter-intuitive behaviour, event-oriented worldview, and participation in feedback structures and behaviour, informed the development of CLD. In KZN DOH, counter-intuitive behaviour is eminent, as the intense reactions by managers seeking to restore the balance in the health system, when making decisions to decentralize health services or address the need for public health specialists at district level to implement the NHI, for example, have been met with resistance among these specialists.

3.3.4.2 Database

We also codesigned CLD to compile and analyse the qualitative data. An archival database was derived from the register of medical professionals, that is, the Health Professional Council of South Africa (HPCSA), Personnel Salary (PERSAL), UKZN academic registrations and Tertiary Hospital data records of specialists employed. Additionally, population projections and general mortality rates from the National Institute of Statistics were used to determine ratio of full-time equivalent doctors per 100 000 population. These descriptive statistics were used to explore the quantitative data (Morecroft, 2015).

3.3.5 Data Analysis

The data analysis of CLD and stock and flow diagrams of the four Tertiary Hospitals were verified by the FGD. These CLD were used to interpret and communicate dynamics or performance through time (Sterman, 2000; Morecroft, 2015).

3.3.6 Testing

Testing was done by comparing through triangulation with actual behaviour observed in the system. Triangulation of data refers to the consistency of data that was collected through multiple sources, which included FG interviews, observations and document analysis (Creswell, 2014). As described above in 3.3.4, FG interviews were recorded on the questionnaire, in minutes of meetings, and from policies reviewed. Policy document analysis, for example, reviewing HR policies, involved the HR research participants and clinical staff, who analysed the policy processes, procedures and systemic effects of policy implementation. This data was used to test the pragmatic assumptions observed in the KZN health ecosystem behaviour, and from which variables were identified and which informed codesigning the CLD.

3.3.7 Results and Interpretation

Results and interpretation of this study occurred through the use of the iThink and VUE computer software. VUE is computer software comprising components which help in abstracting CLD. Data, in the form of variables derived from FGD, are captured onto this software and the component provides organisation and encapsulation into feedback loops (Sterman, 2006). CLD visually conveys complex information which enables recognising systemic patterns and relationships among variables, and shapes qualitative discussion about feedback effects. Data presented in CLD simulate interactions and allow for analysing these relationships. Mental models, contextual variables, environmental projections, organisational behaviour and interactions among people, sub-systems and strategies, can be visually represented using VUE (Williams, 2010). iThink software makes it possible to capture our mental models in a diagram, by drawing a map of the interconnections and relationships in a system. The iThink simulation capabilities make it possible to study the dynamics that result from those interconnections (Kreutzer, 2018).

3.3.8 Reliability and Validity

Reliability and validity of the study is aligned with SD methodology (Sterman, 2000). That is validation of the CLD was conducted with the experts in the sample. A pilot study to pre-test and modify the questionnaire was also conducted. This pilot study, in the form of management meetings, managing by walk about and debriefing sessions, was conducted at King Edward Hospital, one of the tertiary hospitals identified in this study. Ten representatives on this pilot study group involved the same category of actors as described in the sample on page 28 of this study. No changes were made to the questionnaire after the pilot study was conducted.

3.3.9 Bias

Researcher *bias,* according to Sterman (2006), is influenced by policies to promote public health and welfare, and often fails or worsens the problems they are intended to solve. This, he claimed, was evident in decision-makers who often continued to intervene to correct apparent discrepancies between the desired and actual state of the system, even after sufficient corrective actions have been taken to restore equilibrium. Furthermore, Sterman (2000, p 10) notes that:

> "Policy resistance arises from a narrow, reductionist worldview, because we do not understand the full range of feedbacks surrounding and created by our decisions. Delays also create instability and fluctuations that confound our ability to learn. Decision-makers often continue to intervene to correct apparent discrepancies between the desired and actual state of the system even after sufficient corrective actions have been taken to restore equilibrium. Evidence-based learning should prevent such policy resistance by using the system dynamics

approach and testing. *System dynamics approach is an iterative process that also helps in reducing bias".*

3.4 CONCLUSION

In this chapter, the transformative and explanatory paradigm of the SD approach linked the research goals and mixed methodology, as the underlying systemic factors, their inter-relationships and the data collected, were pursued. To ensure the reliability and academic rigour of this study, the sample of actors represented in the FG participated in and verified the data collected. The findings were used to improve our understanding of the problematic situations in the KZN DOH.

In the next chapter, the research gap which is the sustained shortage of specialists over time and the research problem of decreased supply of specialists, along with increased patient load demands in KZN DOH, will be explored. To understand the supply and demand of specialists in KZN DOH, the delays, the impact of actors' mental models, dynamic complexity, and interactions among other variables like policies and decision-making, which affect health system behaviour, the data will be analysed and reported.

CHAPTER 4

UNDERSTANDING THE SUPPLY AND DEMAND OF SPECIALISTS IN KZN DOH

4.1 INTRODUCTION

To improve our understanding of the supply and demand of specialists in KZN DOH, this chapter explores the sustained shortage of specialists over time and the impact of the decreased supply of specialists to meet the increased patient load demands in KZN DOH. In this chapter, I will be collating the information from the various FGDs and will synthesize the data from these into causal loop diagrams, that I have developed using information relevant to DOH as these pertain to the appropriate sub-headings used.

4.2 HEALTH SYSTEM BEHAVIOUR AND DELAYS AFFECTING THE SUPPLY AND DEMAND OF SPECIALISTS

The SAHR (2011) noted that delays in Human Resource (HR) Management results in conflicting goals, which in turn cause problems in dynamically complex systems like the KZN DOH. In 2019, the problem of a shortage of specialists still remains prevalent. Low morale among staff, lack of incentives, and high staff turnover with work overload among specialists and, inevitably, *brain-drain,* are the results of policy directives. This is illustrated in Figure 11, delays in the HR processes for creating and filling specialist posts in KZN DOH.   Exhaustion and behavioural changes among specialists are caused by work overload with the resulting poor quality of patient care, adverse medical events, increased medical litigation and a concomitant financial impact on the health system (SAHR, 2011).

Forrester (1961) described systemic behaviour as interactions or feedback among components of the system; the complexity of each of these components is not itself the cause of complex behaviours. In the present study, an example of systemic feedback is observed by interactions between the policy component and HR Practices sub-component in KZN DOH.
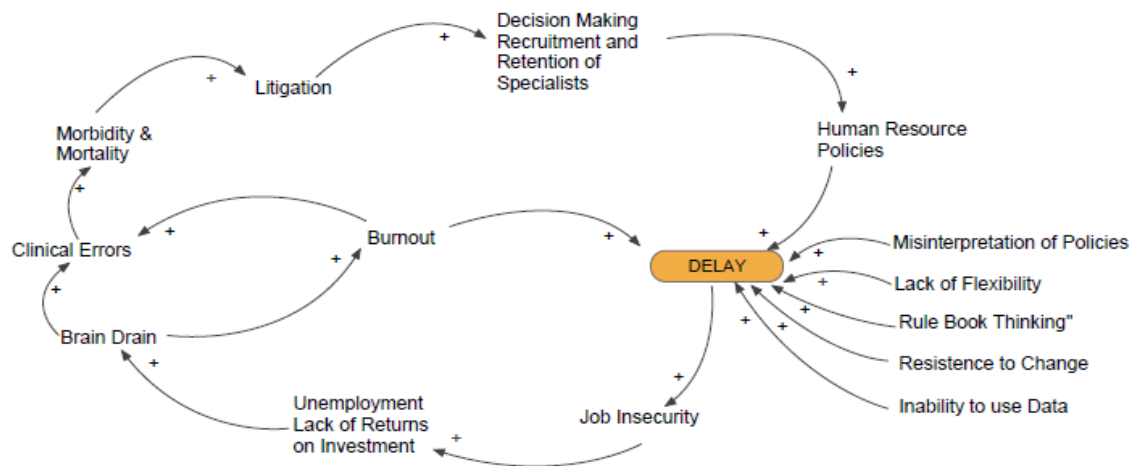
Figure 11: Causal Loop Diagram (CLD) of the Policy component interactions and HR Practices sub-component

Based on an analysis of the KZN DOH context, data obtained from the FGDs informed the CLD in Figure 11, which illustrates the causative factors leading to challenging work conditions. These conditions include specialists finding it difficult to maintain their professional Code of Ethics, and integrity on intention to deliver high-quality care. Senior management decision-making with regard to recruitment of specialists in the KZN DOH is inter-related with HR strategies to politically transform health institutions (Tomaselli, 2019). The restructuring of public health services institutions is expected to reflect this transformation, redress staffing quotas and democratise management. In this study, the FGD noted counter-intuitive behaviour among clinical head of departments and HR practices officials on specialist interview panels, where HR officials are instructed to appoint Black South African qualified specialists in response to this politically motivated decision. Specialist performance at these interviews and competency are disregarded in favour of filling posts based on racial quotas. If the clinical head of department, who chairs the interview panel, requires good performing specialists to be appointed, then an HR deviation motivation needs to be submitted to the deputy director general of HR to approve this appointment. This submission for approval invariably causes delays with dynamic systemic effects: for example, no specialist is appointed or posts need to be re –advertised. Delays in appointing specialists cause job insecurity, inability to retain staff, increased unemployment of specialists and lack of return on investment of staff trained and funded by DOH and UKZN. The dynamic systemic effect of the shortage of specialists and increased work overload among remaining specialists, causes cognitive, emotional, behavioural, spiritual and somatic symptoms of compassion fatigue, burnout, and the lack of a caring attitude among these specialists (Portnoy, 2011), with subsequent clinical errors and increased medical litigation. According to SAHR (2016) research, in an uncooperative management environment, staff shortages and health system

deficiencies are evident. The lack of management accountability also has negative consequences for implementing strategic policies. Thus, the gaps among these strategic policies, priorities and implementation exists, creating a challenging health ecosystem to achieve the desired results. The two types of feedback loop interaction in all system dynamics are positive or self-reinforcing and negative or self-correcting loops (Morecroft, 2015).

A Causal Loop Diagram (CLD) captures the feedback dependency. The arrows indicate the causal relationships, as shown in Figure 12.
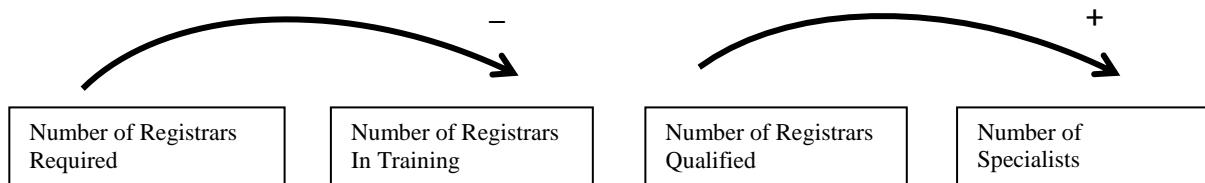
Figure 12: An Illustration of the Causal Effect (Adapted from William, 2010)

In this study, the number of registrars required in KZN DOH to provide health care in the forty-six clinical disciplines, the number in training, the number that qualified and the number of specialists employed, were identified in FGDs and the relevant CDLs developed. The positive and negative feedback and causal relationships affecting the health system behaviour over time were also recognised. Positive feedback or positive loops are self-reinforcing. Positive, + signs at the arrowheads indicate that the effects of variables related to the cause respond in the same direction, whereas negative feedback or negative loops –ve, are self-correcting. These negative loops balance feedback and counteract change.
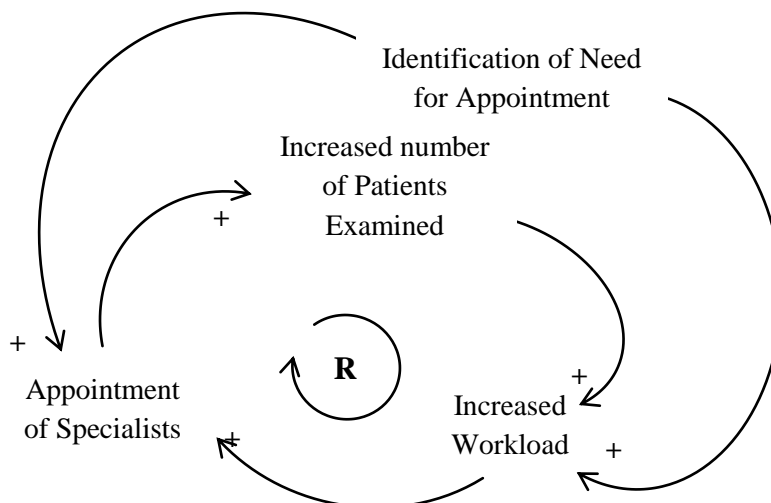
Figure 13: Reinforcing Feedback Loop (Adapted from William, 2010)

In Figure 13, the loop is self-reinforcing, and thus the loop polarity identifier is **R.**

As described, the FGDs acknowledged that an increase in the number of specialists appointed causes the number of patients examined each day to increase and the workload to increase as well. A decrease in the number of specialists increases the delays in examining the same number of patients.
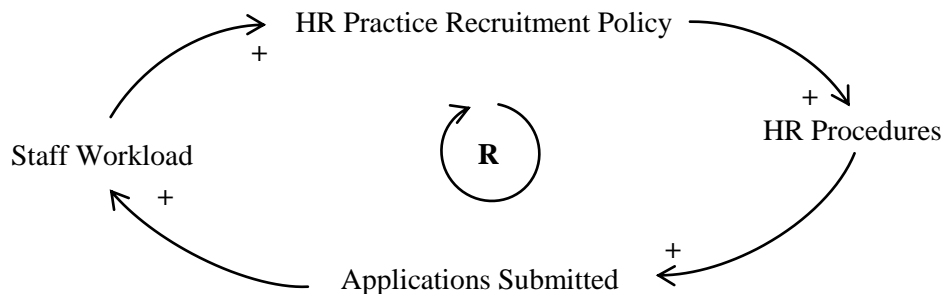
Figure 14: Balancing Feedback Loop (Adapted from William, 2010)

As the number of specialist appointments increase, as shown in Figure 14, various positive loops will act to balance the number of specialists. The loop polarity identifier is a *reinforcing vicious loop*. Since no real systemic quantity can grow constantly, there are limits to growth. These limits are created by negative feedback loops (William, 2010).

4.2.1 Lack of Policy Guidelines Affecting Health System Behaviour

In South Africa, a five-year National Human Resources for Health (HRH) Strategic Plan to address health workforce crisis exists. Yet this plan is deficient in that there is a lack of detail that provides guidelines to the Provincial and Local levels of government. The immense human resource consequences for implementing the National imperative, namely, the National Health Insurance (NHI), is underestimated. The national HRH strategic plan lacks a structure or implementing system, for instance, on how to recruit the right skills and the right numbers of health professionals at various levels of the health system (SAHR, 2016). As the escalation in globalisation and interconnected ecosystems accelerates, reductionist approaches even with significant increase in health policy investments have been insufficient to impact on the present epidemiology complexities, or prepare health systems for future challenges (Swanson et al., 2012). Fragmented, non-systematic and isolated approaches to policy implementation, especially in health systems strengthening of HR for health strategy; results in a demotivated workforce. These disjointed HR attitudes exasperate already dispirited staff, especially in terms of those lacking development in the required skills or with appropriate remuneration (Rwashana, 2014).

4.2.2 Delays Affecting the Supply and Demand of Specialists

Delays in implementing strategies contained in the HRH plan are caused by inadequate health-related technical capacity at the NDOH, as well as high dependence on expensive external consultants and

inappropriate organisational structures at both national and provincial health departments. These systemic delays among interacting variables result in the inability to deal with the health workforce crisis (SAHR, 2016). Furthermore, Sterman (2000) noted that our inability to understand the structure and dynamics of complex systems is hindered by SD application failure and the misperceptions of feedback. All dynamic complex systems are made up of networks of positive and negative feedbacks interacting with one another (Sterman, 2000).

4.2.3 System Dynamics Approach and Feedback Processes

The System dynamics (SD) approach provides health care planners with insight into the elements' interactions, the relationships among these, the nature of the feedback and effect of changes in the healthcare system (Olmen et al., 2012). Thus, health care planners can make informed decisions associated with healthcare systems and sustainability challenges. Sterman (2000) described the system dynamics approach which acknowledges learning, as a relational feedback process. Moreover, he referred to feedback from the health ecosystem to decision-makers also provides both quantitative and qualitative information. This systems thinker and SD researcher explained that information feedback is interpreted by existing mental models which are also referred to as single-loop learning. Similarly, this single-loop learning feedback works in an environment of existing policies, in which decisions rule, and strategies, culture, and institutions inter-relate and are a consequence of our mental models (Sterman, 2000). In his seminal work, Forrester (1961) supplemented this notion of feedback learning processes by emphasising that all decisions are based on our mental models.

4.3 IMPACT OF MENTAL MODELS ON HEALTH SYSTEM BEHAVIOUR AFFECTING THE SUPPLY AND DEMAND OF SPECIALISTS

4.3.1 Mental Models and Boundary Determination

Sterman (2000) explained that in system dynamics, cognitive maps or "mental models" which comprise our opinions about linkages to past experiences, perceptions and relational interpretation of causes and effects, results in describing how a system operates. Mental models also determine boundary identification in SD models, by clarifying variables that are included and variables that are excluded over particular time scales. Furthermore, mental models influence how systemic problems

are described and studied. By applying Sterman's (2000) explanation of SD approach, the boundary in this study is identified as the causal structure that is represented by a variety of variables in CLD which determines the boundary of the model.
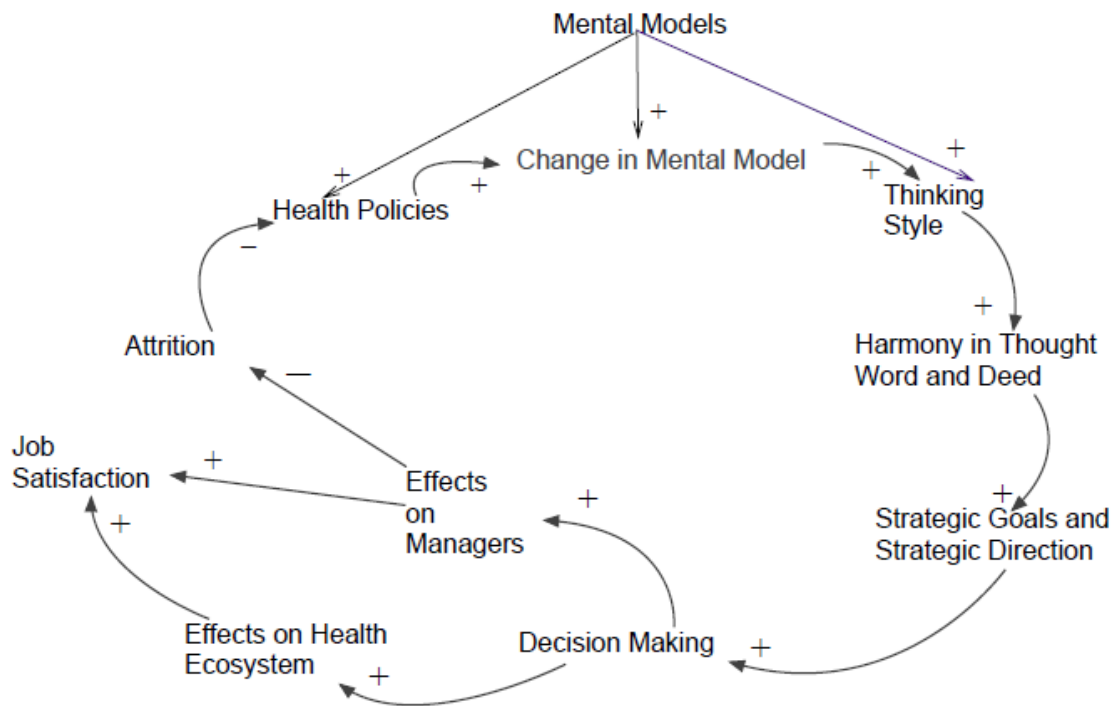
Figure 15: Causal Loop Diagram Mental Models (Adapted from Sterman, 2000)

4.3.2. Mental Models and CLD

In Figure 15, the CLD of mental models was adapted from Sterman (2010) to show that CLDs are appropriate for the actual expansion of the boundary of thinking and for communicating significant interdependencies. From the FGDs, it was recognized that the shift in thinking styles, for example "rule-book" reductionist thinking (Reynolds, 2010) and linear, hierarchical decision-making processes to feedback system thinking (Morecroft, 2015), will result in harmony between thoughts, words and deeds, leading to congruency among managers' thinking style, decision-making and policy implementation. Expanding mental models positively affect managers' productivity, increase job satisfaction, and decrease attrition. The change in mental models also produces an improved understanding of the interdependencies among the various elements in the health ecosystem. Moreover, boundary judgements are interdependent and reflect the evolution of one's thinking. Revising a boundary judgement constitutes reflecting on one's internal reference system. Changes in mental models can be roused by contextual feedback that is derived from physical, psychosocial or cultural domains. These changes which disturb mental models are referred to as double-loop learning.

This type of learning involves acquiring improved understanding or redefining a situation that in turn leads to reviewed goals, innovative decision rules and policy reforms (Atkinson, 2015).

Core behaviours in the learning feedback cycle can be unsuccessful due to dynamic systemic complexity, inadequate tangible evidence of ecosystem changes, confusing and vague description of variables, reduced systematic cognitive abilities, distrustful practices, and unforeseen obstacles to effect vibrant group interaction (Sterman, 2000).

4.3.3 Dynamic Complexity Feedback and Actor's Mental Models

Dynamic complexity feedback in the KZN DOH occurs as a result of the interactions among diverse actors' mental models, stereotypes in multiple interacting perceptions leading to vague variables, inadequate health human resource information, limited systemic thinking skills and organisational *"top-down"* distrustful practices (Reynolds, 2010). The real world is complex. Forrester (1961) described the character of the feedback systems in system dynamics as multiloop, multistate and non-linear. Multiloop feedback results from the various interactions among various actors within and outside the health system. Diverse mental models among various actors result in complex non-linear feedback. One of the many feedback loops is influenced by the decisions of any one actor that functions in a particular system.

Decision-makers' mental models and actions influence these feedback loops to react in both predicted and unexpected ways (Sterman, 2000). Applying Forrester's (1961) description of feedback loops, which may be positive or negative, these loops will comprise various stocks or variables and several non-linearities in the system, as illustrated in Figure 16 below.
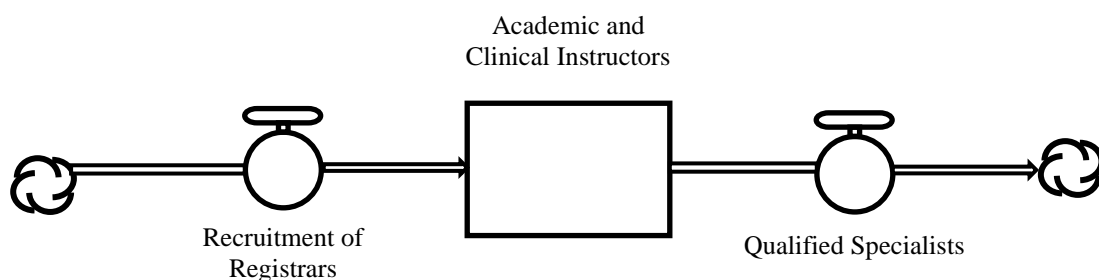
Figure 16: Stock and Flow Actors Network for Recruitment of Specialists

(Adapted from William, 2010)

Describing stock and flow actors' network for the recruitment of specialists in KZN DOH includes, for example, the main actors participating in the recruitment; training, development and appointment

of specialist, namely, are registrars, academic and clinical instructors and specialists. The stock flow diagram in Figure 16 displays the interactions among these actors.
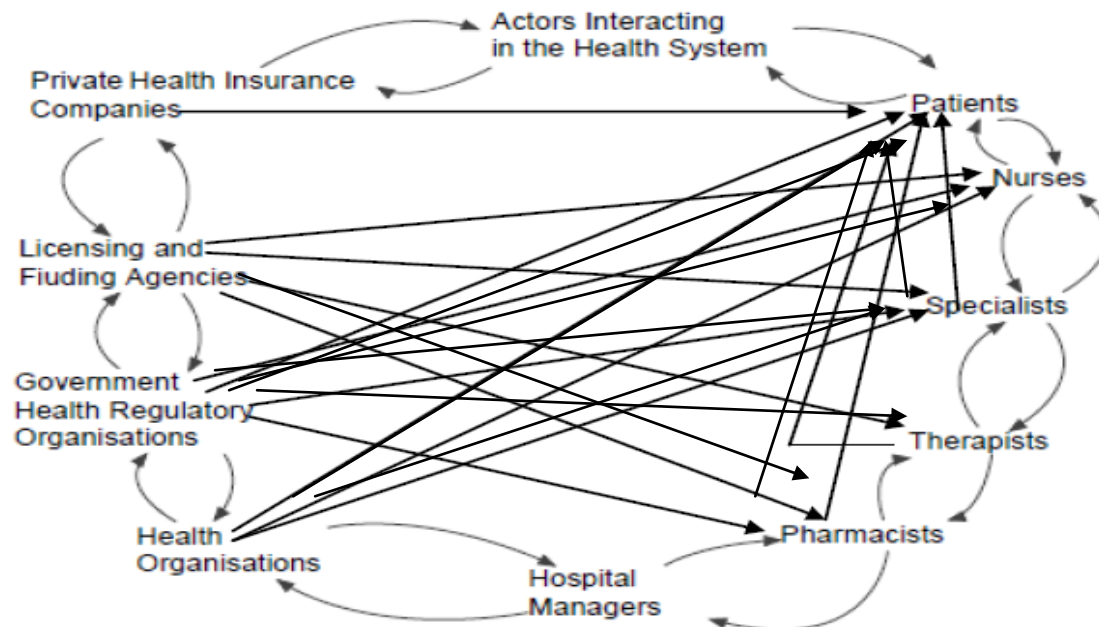
Figure 17: Actors in the Health System (Focus Group)

Other actors interacting in the healthcare system as shown in Figure 17, include patients, specialists, nurses, hospital managers, members of healthcare organisations, pharmacies, government regulatory groups, licensing and funding agencies, private health and insurance companies. Thus, various actors and numerous interactions occurring in the health ecosystem contribute to the behavioural complexity in the health care system. This relational complexity was acknowledged in the FGDs with the resultant understanding that a lack of representation, consultation and dialogue among the actors causes counter-intuitive behaviour in the KZN health ecosystem. Counter-intuitive behaviour among the actors focuses on symptoms of difficulties like the high attrition of specialists, rather than understanding the underlying cause of inability to recruit and retain specialists, for example, in decision-makers' mental models and policy interpretation.

4.4 DYNAMIC COMPLEXITY AND INTERACTION AMONG ACTORS

Sterman (2000) describes health systems as having intricate levels of dynamic interactions. He further explains that systemic complexity is influenced by relational multiplicity among elements, which sequentially cause escalation in connectivity among interlinking variables (Sterman, 2000). These

complex interconnections create challenges in comprehending and managing complex health systems (Faezipour, 2013), although a number of opportunities to find the best solutions lie in this complexity.

In a very simple system, complex and dysfunctional behavior can arise. However, in dynamically complex systems, numerous non-linear interactions among various actors are influenced by time interruptions and lack of management resolutions. Consequentially disequilibrium in the system is often caused by time delays between management taking a decision and its effects on the systemic equilibrium or evolution of the system. Therefore, the capacity to accrue experience, test hypotheses, and develop them, is slowed down by delays which reduce the number of times one can sequence round the feedback learning loop (Sterman, 2000).

Learning loops are slowed down by dynamic complexity. Dynamic complexity also decreases the learning gained on each learning cycle. Numerous types of inter-relating feedback mean that the context is challenging and must constantly embrace supplementary systemic characteristics besides separating the influence of these variables of concern. This is perplexing. Thus, current circumstances in the system cannot be compared with the past state of the system. Mental models and interaction among actors cause further dynamic complexity. Williams (2010) described mental models or paradigms as the foundations of systems. From mental models, shared social agreements about the organisational reality, the organisational goals, factual trends, relational feedbacks, assets, finances and wholistic systemic perceptions, becomes evident.

4.5 MENTAL MODELS AS LEVERAGE FOR CHANGE

Meadows (1997) explained leverage points as totally transforming systems especially when intervening at the level of mental models. Subconsciously, mental models position us, our values, and our beliefs at the centre of these interactions. However, when we think systemically, this thinking skill focuses one as an observer of one's own mind and behavior (Williams, 2010).

Systems thinking provides decision-makers with the ability to shift their thinking from "me" "myself" and "I", to "we", "our" and "us". The system thinker's focus is to engage with the real world, gain insights and meaning, and express values of equity, integrity, respect, trust and competency (Williams, 2010). Numerous variables change concurrently, confounding knowledge of systemic behavior, through a decreasing beneficial value of collective awareness and from incomplete cycles around the learning loop. Furthermore, fluctuations in dynamic systems are also created by delays. The system increases to oscillate affecting the state of the system as the time delays are added to negative feedback loops.

To rectify obvious inconsistencies between the preferred and actual systemic behaviour, decision-makers repeatedly intervene, even after adequate remedial activities essential to re-establishing systemic equilibrium.

In the KZN DOH, the decision to change the funding allocation for the registrar training programme resulted in disequilibrium in the system.
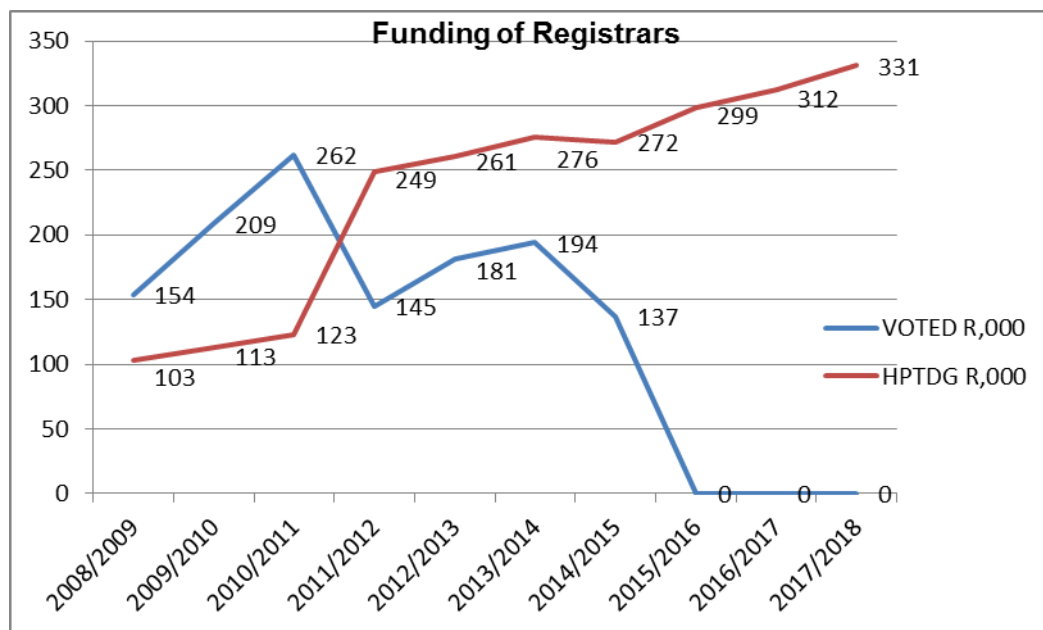
Figure 18: Funding of Registrars in KZN DOH (KZN DOH Analysis report, 2017)

There are two sources of funding of registrars in KZN DOH, namely, the Voted fund allocation and Health Professional Training and Development Grant (HPTDG). The graph in Figure 18 shows fluctuation in the system. This fluctuation occurred when the voted fund allocation for Registrars' training was withdrawn in 2015/16. From 2008/2009 to 2014/15, the registrar training programme was incrementally increased with budget allocation from both voted funds and HPTDG. Since 2015/2016 to 2017/2018, registrar training programme is funded from the HPTDG only. The result of these repeated intervening by decision-makers can thus be metaphorically interpreted as overshoot and oscillation in the system. Oscillation or fluctuation and instability in the system decrease our capacity to regulate demanding variables, besides distinguishing causative influences, thereby contributing to reduction in the amount of learning (Sterman, 2000). The real world is experienced through filters which limit information; for example, nobody knows the existing proportion of specialists produced or an accurate implication of appointed posts accumulation on a single specified time (SAHR, 2016).
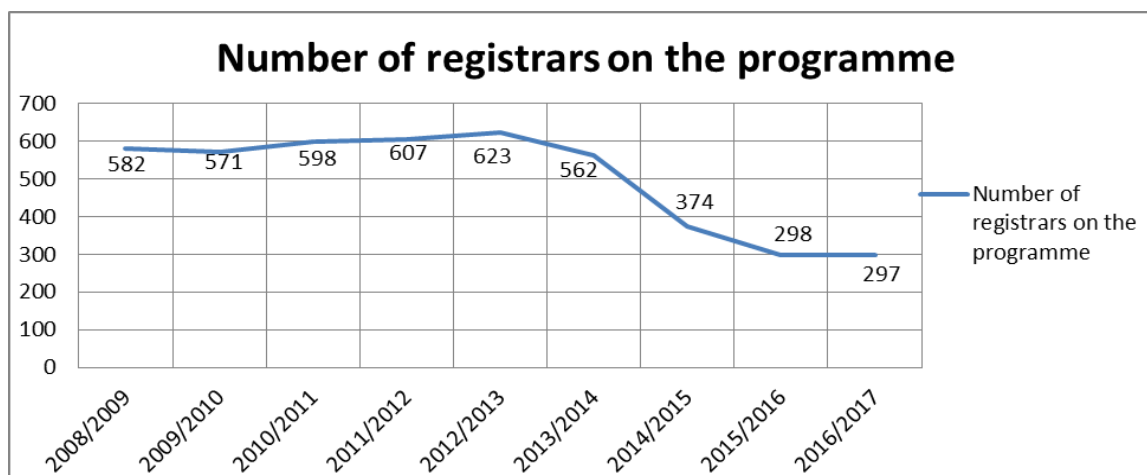
Figure 19: Number of registrars on the programme in KZN DOH

(**KZN DOH Analysis report, 2017**)

In Figure 19, the number of registrars on the programme in KZN DOH over time from 2008/ 2009 to 2016/17 reflects a decrease. This notable decrease in the number of registrars occurred when the decision was made to withdraw the voted fund budget allocation. The rate of production of specialists lacks the appropriate information on HR and finance norms which are required to fill specialist posts in the various clinical disciplines.

As an alternative to this lack of information, approximating statistics are acquired by constructing pilot studies, testing various scenarios, determining mean or average and overdue or deferred quantification. Additionally, systemic performance through verifying quantity can present misrepresentations, systemic interruptions, prejudices, inaccuracies, and further limitations, more or less identified, while other restrictions remain unidentified (Sterman, 2000).

4.6 HEALTH HUMAN RESOURCE INFORMATION SYSTEMS AFFECTING THE SUPPLY AND DEMAND OF SPECIALISTS

The feedback we receive is governed by information systems which can change as we learn. Information systems made up of information and communication technology (ICT) that forms sub-systems within systems through interacting relational feedback loops of health systems

Concepts such as systematic enquiry, metrics or other ideas are defined by our mental models which are used in developing information systems as well as to assess and account for data classification. These evaluation results and information systems reports, influence managerial opinions and contribute various interpretations. Furthermore, the oscillation of mental models remains controlled by whatever we formerly chose to describe, quantify and address. Sterman (2000) explains in

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extensive diverse investigational studies, that the self-reinforcing responses concerning potential positive feedback as well as insight, requires the occurrence of recurrently validating data through expert opinion.

Ou**r** capacity to observe environmental contexts promotes learning and is refined by the positive feedback. Our mental models are challenged by inconsistencies which confines learning, through lack of knowledge of the mutual feedback of expectations and perception**.** In order to learn, we utilise incomplete and inadequate information accessible to us to comprehend the consequences of our individual choices. Furthermore, we change our decisions to align the systemic fluctuations with our intentions which are known as single-loop learning. When we review our mental models and reshape or restructure the system itself, this is referred to as double-loop learning. Argyris (1985) describes single-loop learning as cursory with no fundamental alteration in mental models, whereas in double loop learning, vital transformation occurs leading to perceptual, wholistic worldviews thereby influencing choices, decisions, systemic thinking and policy reforms.

However, most data obtained is vague (Sumari et al., 2014). This ambiguity or vagueness of information is a result of fluctuations in systemic behaviour and has far-reaching consequences impacting on individual decisions. Decisions are perplexed by real-time alterations in a multitude of extra variables. Moreover, the quantity and complexity of interacting variables influence disruptions in systemic behaviour that infinitely overpower available data which excludes different philosophies, worldviews and contradictory interpretations. Data documentation and clarification cause problems equally in qualitative and quantitative research approaches. In qualitative approaches, vagueness grows since the capacity for semantics provides innumerable implications, whereas quantitative approaches encounter problems in trying to distinctively find systemic structures and boundaries of a system's pragmatic behaviour.

4.6.1 Health Human Resource Information Systems in SA

According to the SAHR (2016), there is inadequate health human resource information systems in South Africa, and the systems which are fragmented are not capable of forecasting, planning and training human resources for the health labour force. Furthermore, ICT technical glitches in data quality, reporting and comparability are apparent, and inadequate use of information to inform decision-making also exists.

The ecosystem in the health environment is made up of interacting sub-systems, for example patients' needs or demands (Faezipoura, 2013), health human resources, communication systems, policy processes and financial sub-systems. The World Health Organization (WHO) highlights the significance of understanding the interacting subsystems and complexity in healthcare. This emphasis

is for all health professional students to gain insight into why a systems approach is essential and how the health ecosystem, with multiple relational interactions, leads to complexity in healthcare. Thus, systems thinking, system dynamics and complexity thinking need to be included into their curriculum to develop a deeper awareness of patient quality of care, patient safety and sound clinical outcomes.

As the ICT systems form sub-systems in the feedback structure of health systems, health professional students' learning is based on accessing information on patients' conditions, treatment protocols and sound clinical outcomes (SAHR, 2016).

Health care managers, policy and health care decision-makers' understanding, choice and use of health human resource information systems, enables health professionals to deliver on their mandates (Reynolds, 2010).

4.6.2 Health Human Resource Information Systems and the Structure of an Organisation

According to Reynolds (2010), the structure of an organisation determines strategy.
The strategic opportunities for organisational change could be inadequate depending on ICT processes, access to data, scientific evidence or contextual facts, which are provided to policy and management decision-makers. These limitations to change are not random; they are structural.

Communications, either positive or negative, come into the organisation from its environment; however, the organisation can only distinguish the varieties of messages it is structured to hear. Conversely, when there are no organisational sub-structures which are responsible for hearing these communications on a specific set of issues, then the organisation will not hear those messages. The information may be derived from an individual in the organisation but it dissipates through the organisation because there is no structure to hear it (Reynolds, 2010).

Informed decisions taken in an organisation should be based on valid information and an understanding of the market, including technological changes, fluctuations in economic trends or increasing competitive stressors. This means that organisational structure and policy strategy are interconnected in an iterative growth progression in which the interactional structure affects the strategy, and *vice versa*. Also, when an organisation uses diverse information about its ecosystem and precisely monitors strategic risks, then any emerging threats to the relationship with its environment can be avoided (Reynolds, 2010).
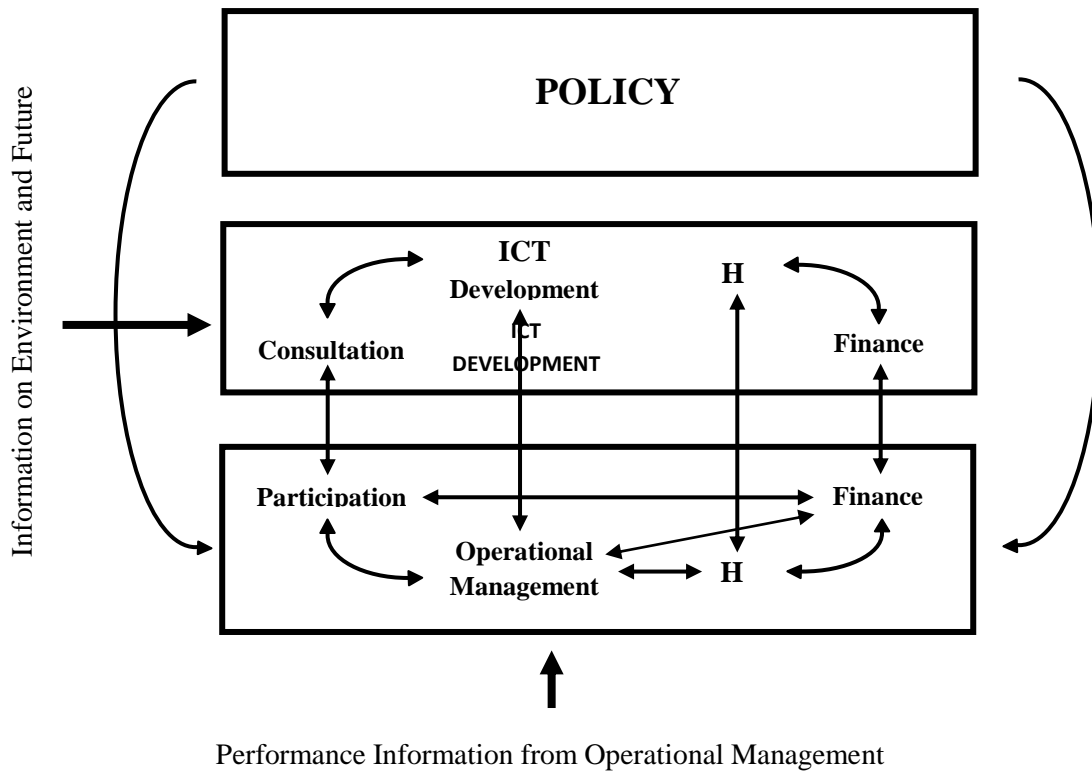
Figure 20: Management Decision Structure (Adapted from Reynolds, 2010)

The management decision structure in Figure 20 highlights how strategic conversations connect various sub-structures on interdependent issues. Decision-making structures are able to maintain their integrity by integrating internal and external information.

Thus, an organisation needs to continually develop and adapt to the ecosystem in which the organisation exists or it will lose its "fit" with its environment (Reynolds, 2010). Events in the environment, trends and structures influence data driven decision-making, whereas design-driven decision-making focuses on mental models, organisational structures, patterns of behaviour and then environmental events.

A metaphor exists of the *iceberg demonstrates leverage in shifting the mental models* that inform the design or structure of a system. In the iceberg model (Fairchild, 2013), the visible ten percent of the iceberg depicts events or outcomes, which is the product of a system's behavior. The maximum affect to change outcomes or adjust events, is by *understanding the 90 percent of the iceberg is hidden from view*. The iceberg model and its relevance to this study, illustrated the dynamic complexities in the KZN DOH, as events were analysed, patterns in systemic behavior examined, organisational management, information and decision-making structures evaluated and actors' mental models explored.

VISIBLE

What is happening?

Reaction to events

EVENTS

PATTERNS

What trends are there
over time? Influences
anticipation

INVISIBLE

STRUCTURES

How are subsystems related? What
influences patterns and relationships between
parts of the system? Influences system design

MENTAL MODELS

Deeply ingrained assumptions, generalizations or images that
influence how we understand the world and how we take action
e.g. beliefs about the system, and what beliefs keep the system in
place, fundamental area of transformation

Figure 21: Data to Design-Driven Decision-making Iceberg Model (Fairchild, 2013)

In Figure 21, the Iceberg model was used as a *tool to guide systemic thinking* (Senge, 2006); in this metaphor the change proposed is from data-driven decision-making to design-driven decision making. At the apex of the iceberg which typically we can see, are events that exist at a point in time, and which can be equated to the stocks or systemic conditions, as strong warning signs. Habitually we seek to improve events; however, *intervening at or very close to an event* is regarded as a place within the system that has the *least leverage for change*. As events occur over time, they are referred to as flows. Flows are activities that alter the level of stocks; behavior-over-time or stock-and-flow diagrams are forms of data that demonstrate a system's behavior, its stability or volatility. In this study, the FGDs identified the event as associated with the stock or shortage of specialists, and the stock and flow were related to the recruitment of specialists, as illustrated in Figure 16 on page 38.

Systemic behaviour over time highlights how a decrease in funding registrars training, which is demonstrated in Figure 18 on page 41, resulted in a decreased number of specialists qualifying.

Below the waterline of the iceberg are patterns of recurring events. Patterns contribute in defining whether organisational growth is sustainable or when the growth potential is approaching its maximum. Also, patterns in systemic behaviour provide managers with data to forecast or anticipate future events and to determine whether or not interventions altered outcomes. Systemic structures such as information, management structures and actors' mental models, are fundamental in design-driven decision-making (Burian, 2014).

According to Senge (2006, p. 5),

> Mental models which are deeply ingrained assumptions, generalizations, or images, interact with how we understand the world and how we take action. As we are not consciously aware of our mental models or the effects these have on our behaviour, decision-making or choices are impacted upon.

The iceberg model allows us to explore a more comprehensive representation of the different elements that interact in the DOH context. An example of the problem currently experienced in the KZN DOH is the management decision to decrease funding for registrars' training, resulting in the shortage of specialists. What is observed at the top of the iceberg is the *event* where that problem manifests. By using the iceberg model an opportunity is created to detect variables below the event level and to consider which elements influence or contribute to causing the visible event, as well as what are the *patterns or trends over time*.

In this research, the FG's observations of the *behavioural patterns, organisational structures, relationships and actors' mental models* were discussed, resulting in identifying the contributing factors causing the research gap, which is an increased shortage of specialists. By identifying what underlying structures may be influencing the trends, for example, HR officers' relationships with medical staff, senior management or finance managers and how organisational structures are designed to support recruiting, appropriately qualified specialists emerged. Focusing on the structure and design of the system, outcomes can be anticipated (Fairchild, 2013). Organisational behaviour in the real world comprises time delays and feedback loops based on information received from both the internal and external environment, and system dynamics approaches are used to develop models more consistent with these realities. Forrester (2010) emphasises that information from the external environment, for example growth, not only population growth, but also economic growth, needs to be used as leverage in policy and organisational design.

Fairchild (2013) noted that in system dynamics, stocks and flows representing accumulations for example data and information technology capacity are applied to understand the organisational behaviour. Additionally, feedback loops are used to determine dynamic behaviour for instance increasing data management performance leads to increasing motivation and thus increased skill development. Information on the underlying structure of an organisation responsible for complex behaviour can be represented by the combination of stocks, flows, and feedback loops (Fairchild, 2013).

This relevance of the iceberg model and the research findings show that the system dynamics approach proposed in this study also provided insight into the interconnectedness of these elements, the various bottlenecks in the ice-berg model, and the possible areas for improvement. One such area which was identified is the information systems in KZN.
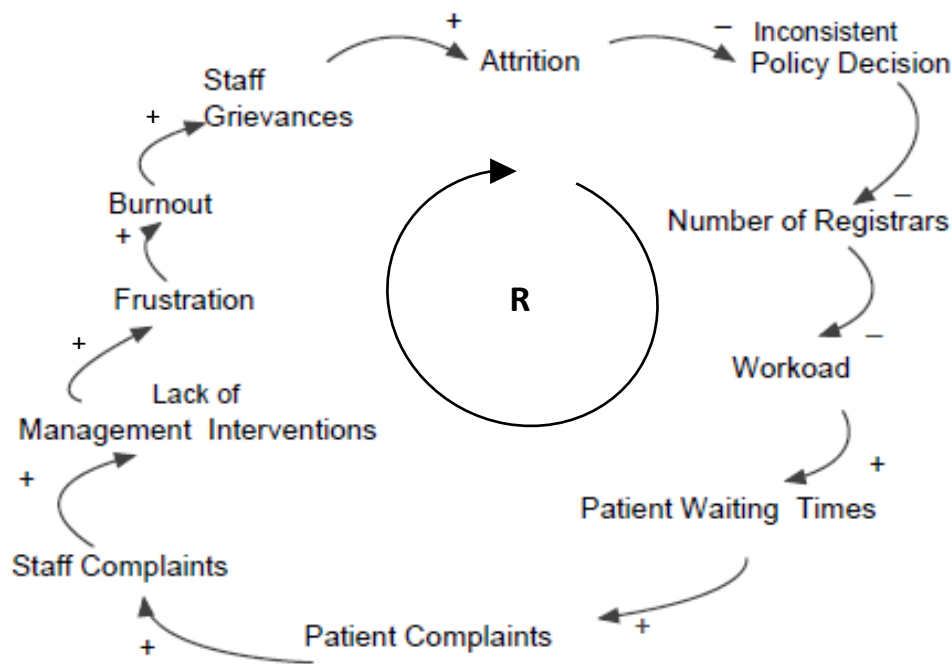
Figure 22: Organisational Behaviour over Time (Focus Group)

4.6.3 Lack of Information and Resultant Organisational Behaviour over time

The CLD in Figure 22 was designed from the FG dialogue and reflects that in KZN DOH, the of lack of information, lack of consultation in policy design and workload allocation, delays in addressing patient and staff complaints, result in organisational behaviour changes over time.

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Decision-making is influenced by the structure of information flows. Determining who does and does not have access to information, supplying feedback and missing feedback, are the most common causes of system malfunction (Meadows, 1997).

According to Meadows (1997), a powerful corrective intervention is adding or restoring information and absent feedback is re-established to the accurate structure and in persuasive practice. Accountability for informed decision-making can be used as leverage for organisational changes. Moreover, leverage points are spaces within a complex system like the health ecosystem where a minor intervention or shift in one element can produce immense changes in the whole system (Meadows, 1997).

4.7 POLICY AND POLICY DECISIONS AFFECTING THE SUPPLY AND DEMAND OF SPECIALISTS

Producing human resources for health requires a series of strategic policy decisions to leverage the numbers and quality of staff required for health system reform to achieve universal care and meet patient needs (SAHR, 2010).

In South Africa, the distribution of healthcare professionals differs significantly between the public and the private sectors (Econex, 2014).
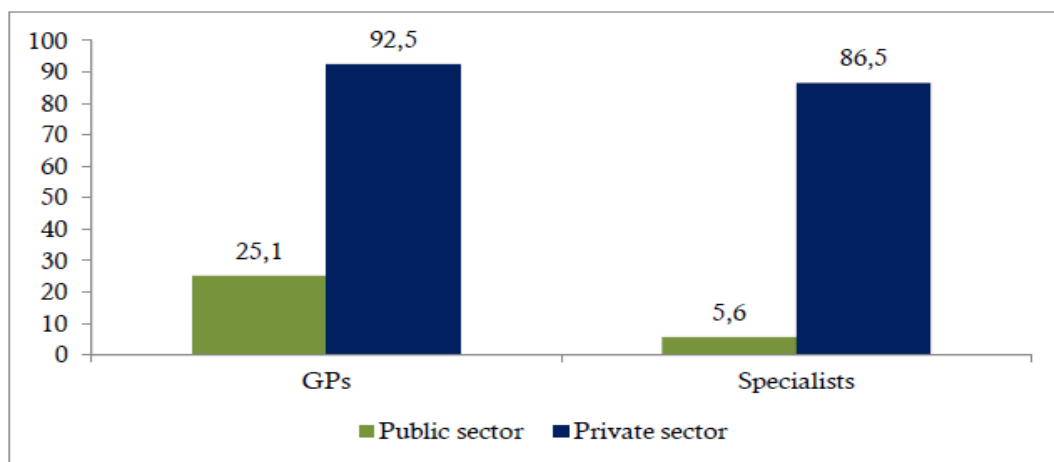
Figure 23: Number of Doctors in the Public and Private Sectors per 100 000 Population (Econex, 2013)

Figure 23 displays the distribution of medical specialists in the private sector as 86.5 per 100 000 beneficiaries in 2013, as opposed to 11.4 specialists per 100 000 people in the public sector. Huge disparity in the supply of doctors between provinces also exists. The urbanised and affluent provinces

like Western Cape and Gauteng have a greater number of specialists relative to provinces where a larger share of citizens live in rural areas for example KZN (Econex, 2014).
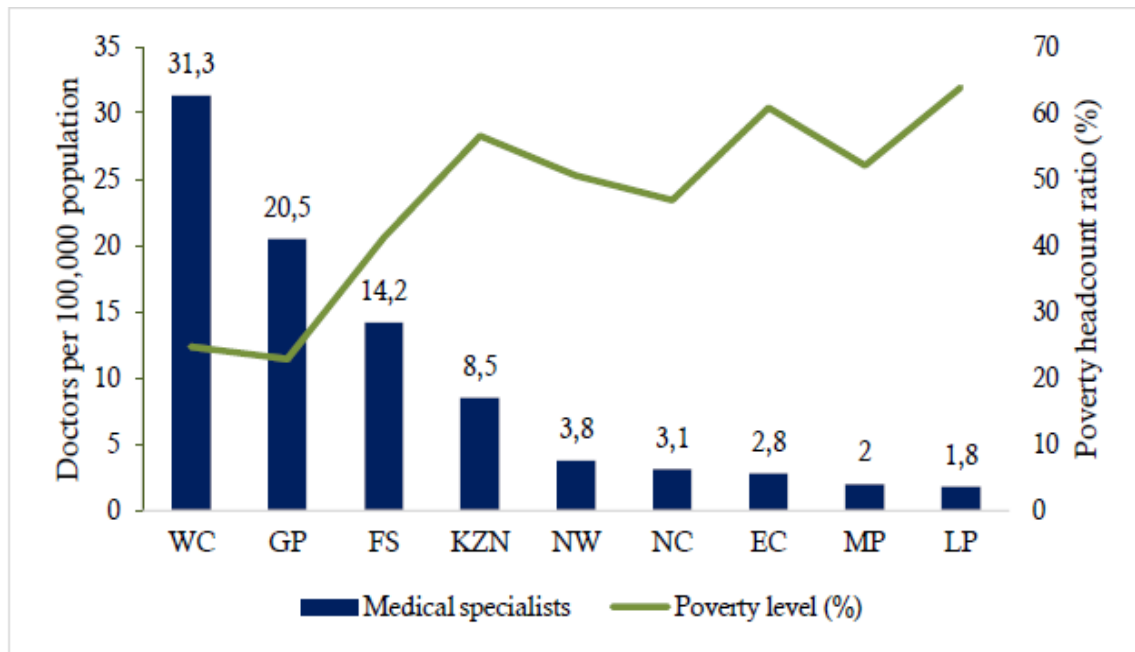
Figure 24: Public sector Specialists per 100,000 population (2014) and Poverty headcount ratio per province (2011); (HST 2015; Stats SA, 2014)

Figure 24 illustrates relationship between the distribution of specialists and the poverty headcount ratio within different provinces. The provinces with the highest poverty headcount ratio have the lowest incidence of specialists (Econex, 2014).

Although no norms or data are obtainable in SA, the Development Bank of South Africa report (2010) noted that compared to 1997 staff baseline, an additional 80 000 staff was required in the public sector.
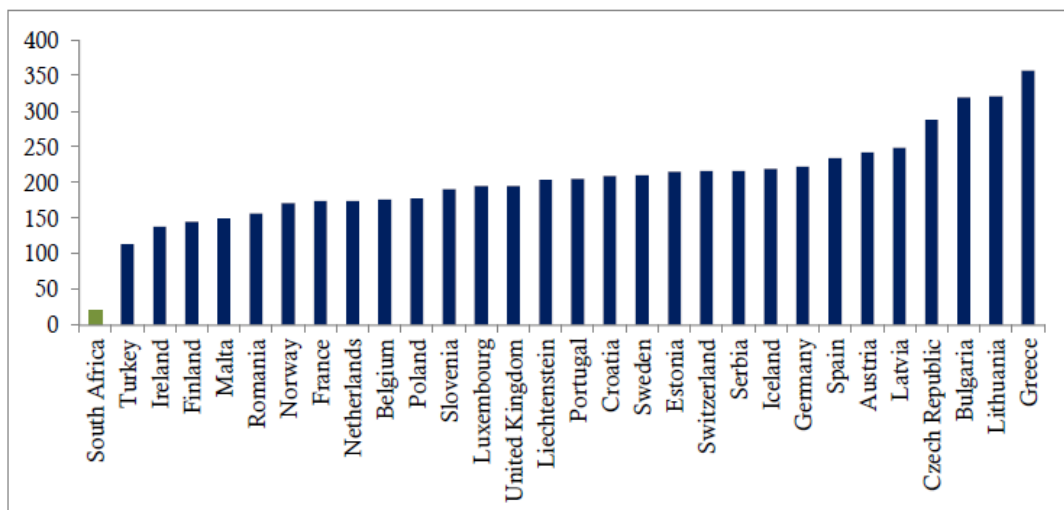
Figure 25: Number of specialists per 100,000 citizens in Developed and Developing Countries and South Africa Eurostat (2015); Econex (2014)

Figure 25 compares the distribution of specialists between South Africa and Brazil, Russia, India, China and South Africa (BRICS) and other developing countries. An evident shortage of specialists exists in SA (Econex, 2014). The disease profile of the SA population and enormous discrepancies between the number of doctors in the public and the private sector, are other factors that affect the comparison of different health systems. HIV/AIDS plays a disproportionally higher role in the disability adjusted life years (DALYs) of South Africans (Econex, 2014).
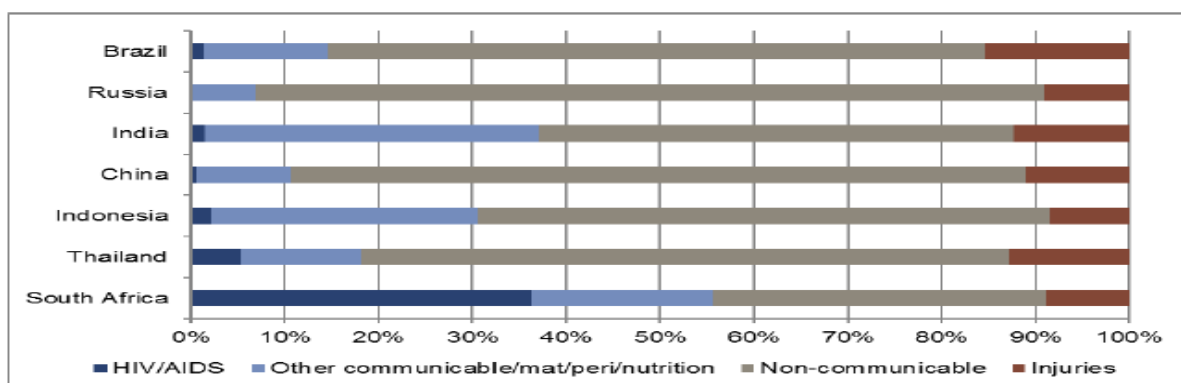
Figure 26: Developing country comparison of 2012 DALYs (World Health Organisation, 2014)

Figure 26 shows that this HR demand mainly for health-care professionals is required to meet the upsurge in population size and the inordinate burden of disease from HIV and AIDS.

4.7.1 Production, Recruitment and Investment in Specialists

An effective health service is extremely dependent on health-care professionals. Medical specialities like Oncology, Critical Care, Paediatrics, Obstetrics and Gynaecology are vulnerable and require strategic interventions. These specialities have a high burden of disease, and are high cost drivers, which require competent specialists who will impact on the morbidity and mortality rates in SA (KZN APP, 2016). Production, recruitment and investment in health-care professionals should be explicit in HR policies and strategic plans (Morecroft, 2015).

Integrated planning among policymakers, clinical managers, HR, finance and institutional managers for health-care professionals with adequate personnel budget and relevant post structures, are required. Also, policy reforms for recruitment and selection of specialists who are regarded as staff with scarce skills need to be designed. Furthermore, SAHR (2016) emphasised that the current shortage of specialists warrants all specialists to be included as potential public service employees. As one of the NDOH priorities is "HR for Health strategy", this strategy still requires a policy framework to quantify and cost the training of health science students. Additionally, the lengthy lead-time for producing health science graduates is approximately four to five years and delays in policy reforms and HR recruitment processes add to the health care demands and backlogs in patients awaiting treatment (SAHR, 2016).

4.7.2 SA National Human Resource Plan and Leadership

A clear national HR plan that will supply the numbers and qualities of health science graduates is required for SA, so that the departments of Health and Higher Education can ensure that the service platforms where training occurs are suitably resourced (HPTDG Policy Guideline, 2013).
Another critical variable is the organisational culture of health facilities to create a positive working environment (SAHR, 2010). Poor leadership and management in institutions, poor human resource practices and poor communication, have been cited by specialists as contributing to the current poor organisational culture in the KZN health department.
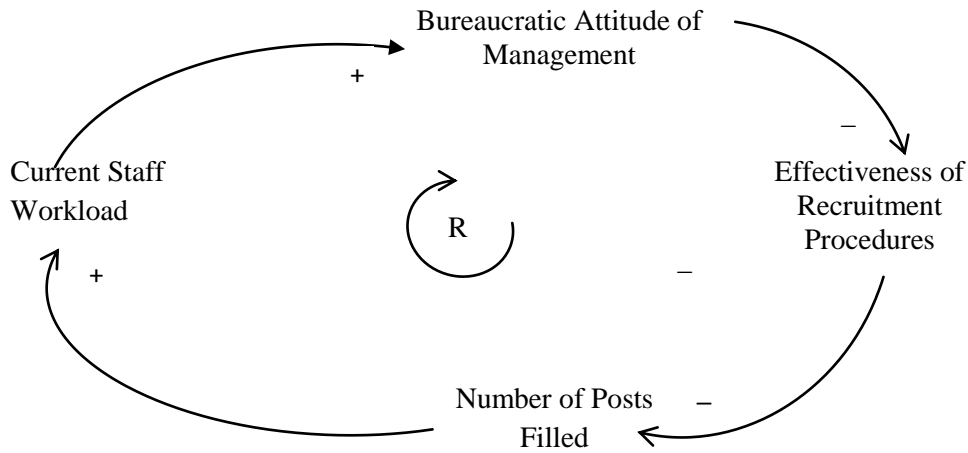
Figure 27: CLD of Management Attitude to Policy Implementation (Focus Group)

In Figure 27, the CLD of the management attitude to policy implementation has been cited in the FGD. Management attitude to policy implementation, specialist recruitment and enabling working conditions influence staff productivity and retention (SAHR, 2016). The CLD above highlighted the systemic behaviour in which poor conditions in the work environment affect the productivity and behaviour of specialists. Thus, the reinforcing loop with resultant dissatisfaction, protests and high attrition rates lead to poor quality services delivery. (Daily News, 8th May 2017).

4.7.3 Policy Resistance, Feedback and Delayed Recruitment Practices

Sterman (2000) explained how a lack of understanding the complete range of feedbacks functioning in the system causes policy resistance.
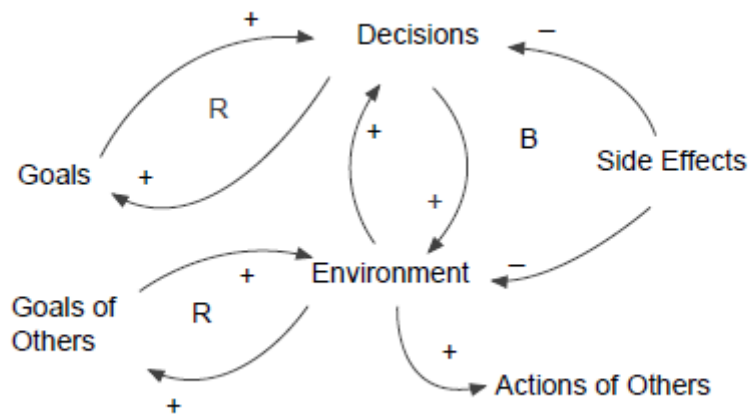
Figure 28: Feedback of Decisions, Delayed Reactions and Side Effects

(Adapted from Sterman, 2000)

In Figure 28, changes in the state of the system by one's actions cause a reaction by other actors or counter-intuitive behaviour, to restore the balance that was upset. These actions also produce side effects which are frequently distant in time and space in complex ecosystem like the health system.

The above positive *reinforcing loop* means that as the *goals increase,* the *effect of decisions* also *increases,* whereas the *negative balancing loop* means that if the side effect *decreases,* the *effect on the environment increases.* An example of these feedbacks is delays in HR officers' processing of specialist recruitment even though the senior manager's decision to fill specialist posts was to close the gap in shortage of specialists. These feedbacks can cause unexpected results and unproductive policies being implemented. In order to circumvent policy resistance and to discover high leverage policies, it is necessary to expand the boundaries of our mental models. This expansion of mental models increases awareness and understanding of the implications of the feedbacks produced by the decisions managers make (Sterman, 2000). Thus, the structure and dynamics of the increasingly complex systems in which organisations are embedded, needs to be understood.

Challenges in healthcare systems disturb the system's equilibrium and sustainability. These challenges include increasing demands, increasing cost of medical technology and medication, higher patient expectations, and limited resources (SAHR, 2016).

Diminishing resources and increasing demands in healthcare systems need to be balanced in complex system to make certain there is provision for sustainable healthcare with quality of life.

4.7.4 Effects of Policy Resistance, Policy Design and Implementation

Faezipoura (2013) described the social element of healthcare which emphases principles of equity, empowerment, accessibility, participation, cultural identity, and institutional stability.

Patients are the principal focus of healthcare systems. They can be regarded as customers in these complex systems, who have expectations of the type and quality of health services they receive. Patient satisfaction is a significant dynamic in the social element of health systems. It is characterised by patient fulfilment in respects to the cost, accessibility to services, and resources, physician role, behaviour and patient well-being (Faezipoura, 2013).

An example of patient complaints on poor quality of care and delays in Oncology services, noted that several referrals to different state hospitals caused delays in diagnosing, which resulted in the patient being finally diagnosed with stage 2 cancer. The patient was kept overnight and then transferred to the referral hospital for further tests. According to a family member, when the patient returned to

hospital "all they could say, rudely, was that the machines are broken and there's nothing they can do" (Daily News July, 2017).

Another case in point was the report on non-functioning Radiation Oncology services in KZN DOH compiled by the South African Human Rights Commission, which established that the provincial and national health departments had denied patients' rights to healthcare (Daily News July, 2017). The oncology services reached a crisis when the last state oncologist in Durban resigned, leaving just two employed in the province, both of them in Pietermaritzburg (Daily News July, 2017).

Effective governance and systemic behaviour are regulated by constitutions, policy guidelines of the system or organisation as they define the scope, its boundaries, its degrees of freedom and social rules. The rules of the system, be they incentives, punishments or constraints, determine the behaviour of the system. The power of rules is high leverage points (Meadows, 1997).

In a system where policies are designed by organisations and managed by them, for the benefit of the organisation, but exclude any feedback from any other sector of society, enormous accumulations of power and huge centralised planning systems exists thereby destroying themselves (Meadows, 1997). Using the system dynamics approach, determining and representing feedback processes, stock and flow structures, time delays, and nonlinearities, will determine the dynamics of a system (Sterman, 2000).

In this study, recent events like the protest action by doctors in KZN DOH has been acknowledged and information reports from the in- depth interviews conducted with aggrieved staff and media reports were used (SAMA May, 2017). To determine system behaviour feedback processes and to understand the KZN DOH system dynamics, a CLD was derived from the relationships, interactions, policies and direction of feedback among the actors involved in specialist training, recruitment and retention.
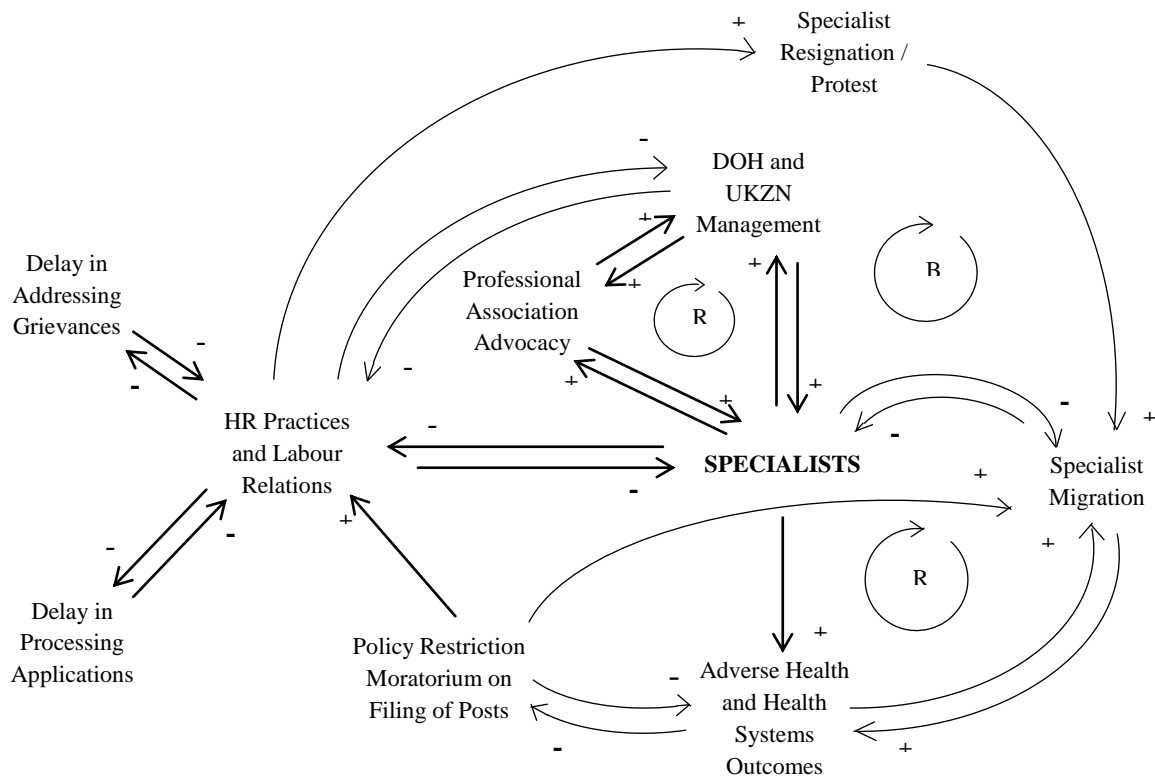
Figure 29: CLD Relationships among Actors, Policy and System Behaviour in KZN DOH (Focus Group)

The CLD in Figure 29 illustrates the measures, actors, and interactions or the under-lying mental model and system behaviour that stimulated results in the emergence of the moratorium on filling of posts policy, and the systemic responses over time in the KZN DOH. Delays by HR practices and labour relations officials in addressing grievances among specialists increased specialist resignations and specialist migration to other provinces and overseas. Thus, the reinforcing loop indicates the systemic impact on the increase in adverse health and health system outcomes. When the specialist migration decreases, the balancing loop reflects increase in the specialist pool.

Based on management mental models, economic evaluations and surveys, a number of vacant specialist posts were abolished and evidence of increased clinical services influencing demand is anecdotal due to deficient health information systems (HRH SA, 2012).

In KZN DOH, there is a lack of a health information system with a database for medical adverse events, thereby demonstrating non-compliance to national hospital management policy. The SA Policy on Management of Hospital (2012) objective is to address the negative perception of communities and build a culture of competence, effective, transparent and a caring ethos within the health care environment (Government Gazette, 2012). Explicit criteria on the hospital governance

structures and appointment of competent and skilled managers are stated in the SA Policy on Management of Hospital (Government Gazette, 2012).

In this study, reflections from the FGD noted that information from clinical governance audit reports were evaluated in cases where medical adverse events like incorrect operation or administrating incorrect medication occurred. According to Health Systems Trust's,

> "There is a human resource crisis in healthcare that is driven partly by government tolerance of incompetent staff" (SAHR, 2016, p.17).

Inadequate attention has been given to the underlying feedback mechanisms in the DOH. For example, according to the KZN National Tertiary Services Grant Annual Report (KZN NTSG AR, 2016/17), quarterly patient activity performance reports recorded how, when staff gain new skills by taking on different duties, they identify more patients requiring treatment.

The knock-on effect of the shortage of specialists, lack of competent skilled specialists and increasing patient demand, has resulted in remaining doctors working extra shifts or overtime, and cases of medical litigation in which negligence, illegible reports or missing records have been processed in KZN DOH (Auditor General of SA Report, 2015/16).

Moreover, Rwashana (2014) noted that by understanding how the various feedback mechanisms work, patient demand can be controlled by introducing stringent clinical guidelines and more effective governance policy interventions. According to SAHR (2016, p.21), Rispel noted:

> There is a crisis of unprofessional behaviour, poor staff motivation, sub-optimal performance, and unacceptable attitudes of health workers towards patients, all of which compromise quality of patient care and health service efficiency…These problems are exacerbated by a general lack of accountability, reported by health service managers in several studies.

The degree of system dynamics awareness in terms of holistic understanding, the complexity of the KZN DOH ecosystem and the silo mentality, results in HR practices trying to resolve recruitment and retention of specialists independently. Not interacting as an integrated team results in these HR problems remaining pervasive (SAHR, 2016).

The systemic behaviour described is aligned to what Sterman (2000, p.12) refers to when he speaks of independent actions which trigger side effects like the emergence of policy resistance:

> Policy resistance needs be addressed, for example reviewing high leverage policies like the Employment Equity Amendment Act 2013 which involves expansion of the boundaries of management mental models. By expanding their mental models management increases their

awareness and understanding of the implications of the feedbacks produced by the decisions they make (Sterman, 2000). An example of the effects of policy resistance in KZN DOH is the HR Practice official's mental models in implementing the Employment Equity Act without understanding the system behaviour and implications of shortage of specialists

Consistent with Barber (2010), the feedback processes where management *decisions to freeze or abolish specialist posts,* require understanding of the disequilibrium these decisions cause on the health ecosystem. Disequilibrium in the KZN DOH ecosystem is caused by delays in unfreezing, creating and approving authority to fill posts, which results in underspent budgets on compensation of employees. According to the KZN NTSG AR (2016/17), this delay in the filling of specialist posts is between nine to eighteen months, which aggravates the problems caused by the shortage of specialists.

To overcome policy resistance, policy design, development and delivery require integration and coordination among policymakers, clinical managers, HR, finance and institutional managers to ensure that sufficient personnel budget and relevant post structures are achieved (SAHR, 2016). A successful policy implementation was cited by a study in Spain: Barber (2010) noted that policies are required on recruitment of specialists in a system where the depopulation of rural areas still requires that a minimum number of doctors be maintained for reasons of equity.

4.7.5 Delays in Policy Decisions and Procurement Procedures

Other findings by Barber (2010) were that as medical technology intensifies, the need for specialists to conduct new procedures like Paediatric Cardiac Catheterization or new Radiation treatment in Oncology, requires policy directives. Clinical analysis or computerization of information and advances in health technology result in new techniques for specialists to conduct. Delocalization of some technologies, for example X-Ray results, can be transmitted by the Internet to highly specialized centres, for evaluation (Barber, 2010).

Specialists who have resigned in KZN DOH have cited in their exit interview that not having suitable, functioning and accessible medical equipment to conduct their duties is demotivating and unethical to ensure quality patient care. This feedback of delays in procurement of medical equipment causes disequilibrium and the system effect is that retention of specialists has become challenging. Procurement of medical equipment requires technical specification and the counter-intuitive behaviour among clinical specialists, technical staff and health managers, causes delays in equipment orders. The impact of these delays in procuring medical equipment is shown in Figure 30.
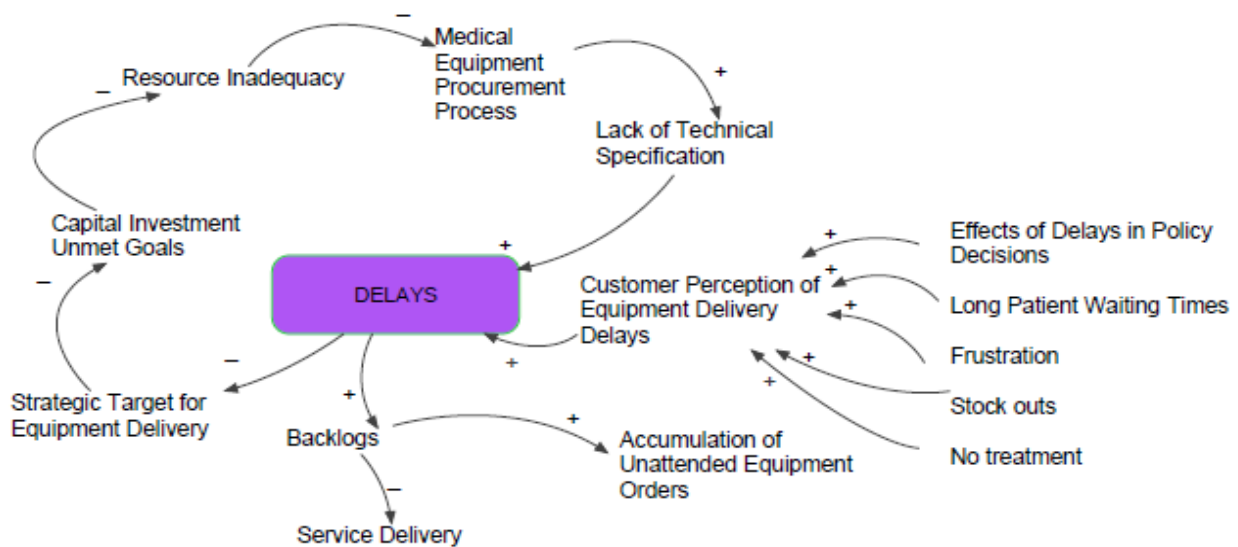
Figure 30: CLD Impact of Delays in Procurement of Medical Equipment (Focus Group)

In Figure 30, reflections from the FGD in this study noted that delays in policy decisions, procurement procedures and implementing suitable medical equipment resulted in increased patient waiting times, delays in diagnosing and treating patients and cancellation of medical procedures or surgical operations (KZN NTSG AR, 2016/17).

KZN DOH APP (2016) reports changes in disease prevalence and the patterns of morbidity, which require variations in specialists, for example, increase in Oncology, Paediatric Infectious Disease or Accident and Emergency Trauma. The FG in this study noted that the lack of policy decisions in KZN DOH to train adequate registrars in Oncology, Paediatric Infectious Disease or Accident and Emergency Trauma, results in decrease number of specialists who can be employed.

In South Africa, other policy directives are that the decentralization of the Health Services requires specialist teams at District level in which Paediatricians, Obstetricians, Gynaecologists, Neonatologists and Public Health Specialists need to be recruited (HRH SA, 2012). The current health system behaviour is determined by policy development, lack of coordination between DOH and Department of Higher Education and Training (DHET) and delays in implementing the HRH strategies, resulting in a decreased number of qualified specialists who can be recruited (SAHR, 2016).

Supply and demand incentives (Barber, 2010) are a source of leverage for change, for example, by creating different HR policy procedures to compensate differential salaries that are paid in the public health system. Changes in the uniform salaries in the public sector require negotiation among actors in

the health system and policy decisions to compensate for the unevenness of supply and demand (Rwashana, 2014). International migratory flows attract doctors to some countries, especially in an open system; therefore, to address the shortage of specialists, the process of medical internationalization needs to be considered in SA (SAHR, 2016).

4.8 CONCLUSION

This chapter examined how the KZN health system behaviour is affected by delays, the lack of policy guidelines, and the impact of mental models, health human resource information systems, and policy articulation and policy decisions on the supply and demand of specialists.

To improve our understanding of the supply and demand of specialists in KZN DOH, the mental models and boundary determination, dynamic complexity feedback and interaction among actors' mental models were further analysed.

One insight which I derived from the interaction among FGD and the identified variables, for example, is that mental models are deeply ingrained assumptions, generalisations, or images that fundamentally influence one's worldview, beliefs and how we take action. Another insight is that we need to be considerate that we are not consciously aware of our mental models or the effects they have on our behaviour (Senge, 2006).

This analysis of mental models in the KZN DOH extended my empathetic understanding that mental models are dynamic because they shape how senior management decisions are made and the diverse policy interpretations which exist. From the FGD, one example is that if senior managers believe some HR officers are unreliable, especially when experiencing delays in processing specialist applications, they act differently from the way they would if they believed HR officers are reliable. Thus, we need to acknowledge that two people with different mental models can observe the same event and describe it differently, because they have observed different details.

We need to recognize that mental models are acquired either through observation, instruction or inference, and also reflect one's beliefs, for example, about the health system, which may or may not correspond with how the actual realities in the system interact with individual perceptions. Thus, the impact of mental models on the dynamic complexities of the health ecosystem should also include the relevant information processing and knowledge structures that make it possible for the person to use, to predict and understand information (Wilber, 2007).

Furthermore, the negative implications of the lack of health human resource information systems in relation to the structure of the organisation, policies, policy decisions and policy resistance, result in inadequate understanding of the widespread effects of feedbacks on the health ecosystem. Another systemic variable is counter-intuitive behaviour among various actors' interactions, which also causes negative feedback and delayed recruitment practices relative to the production, recruitment and investment in specialists.

The resultant organisational behaviour over time was related to effects on policy design, policy implementation and delays in policy decisions for procurement procedures. Also, to adapt systemic equilibrium and positive feedback by reinforcing the implementation of leverage for change, in design – driven policies, decision-making and organisational structures through initiating and sustaining strategic conversations, become necessary. These interactions will connect various sub-structures on interdependent concerns like the development, recruitment and retention of specialists.

The power of CLD is to provide managers with the opportunity to holistically assess the system, the complex processes and inter-relations, and to make decisions on how to balance the variables or policies to stabilize systemic behaviour. This SD analysis informed recommendations for actions to be taken to address the mental models, counter-intuitive behaviour and systemic feedback in relation to the shortage of specialists, for example, by initiating consultation with staff where they can ask senior management questions and be reassured about the different recruitment processes. Likewise, management can learn what information specialists require to remain engaged and be retained.

The research analysis of the KZN health system's behaviour, the impact of mental models, the dynamic complexity and interaction among actors, and policies and policy decisions, proposes that the SD approach is a methodology for systemic change and growth. Using this innovative approach as leverage for change is fundamental for transforming systemic behaviour through alternative pathways of thinking, thereby shifting mental models and HR practices to address recruitment of specialists. In the next chapter, health policy analysis and workforce planning will be examined.

CHAPTER 5

DESIGNING, DEVELOPING AND DELIVERING A HEALTH POLICY IN A DYNAMIC COMPLEX HEALTH ECOSYSTEM

5.1 INTRODUCTION

In this chapter, the processes in design, development and delivery of health policy will be analyzed, to develop the researcher's understanding of systemic dynamics in the KZN health sector and effects of systemic feedback on policy implementation. The focus on health policies and health systems analysis in the current study identified what policies exist in KZN DOH; how are the policies applied; how the health system functions, and what interventions are required to improve policy implementation and functioning of the health system. This health policy and systems research included policies on funding sources, human resource management or governance essentials especially in support of tertiary health service provision (Gilson, 2012). Often the mechanistic approach of policymakers to health systems policy implementation results in the assumption that by executing certain policies, the effects on expected change in the performance of local actors are anticipated. This type of mechanistic thinking ignores the interactions and valuable experiences among actors, for instance, general health providers, professionals and patients. Furthermore, the lack of holistic interactions between actors leads to a top-down or command and control attitude, in which the bureaucratic rules and regulations discourage active participation in policy design, development and delivery (Rouse, 2007).

5.2 SYSTEM DYNAMICS APPROACH TO TRANSFORM HEALTH POLICY DESIGN, DEVELOPMENT AND DELIVERY

5.2.1 Dynamic Complex Health Policy System

The health ecosystem is a dynamic, complex system with diverse elements and varied potential interventions to address challenges; thus, the command and control attitude affects systemic behaviour with inadvertent consequences such as the duplication of services and HR or financial inefficiencies (van Ginneken et.al, 2010). Furthermore, the effect of the command and control attitude causes policy resistance, a lack of participation among actors, loss of capacity and dependence. This negative feedback (Sterman, 2006) in the health ecosystem entrenches the silo mentality in which local actors focus only on their sub-system goals, performance indicators, and short -term disease and management processes, without considering the impact on the larger health system (Atun &Olynik, 2008). Thus, there is a need to reflect on the consequences of policies outside local sub-systems and

the impact (Matsoso, 2011) on the whole health ecosystem. The system dynamics approach in this study, as well as complexity theory and systemic interactions among elements of policy design, development and delivery, were used to examine the context, dynamic complexities, and interactions among actors, perceptions and mental models of actors, systemic feedback and the interconnectedness of policies to system performance. The intention of this policy analysis was to determine if the health sector is achieving its goals. By explaining the systemic behaviour and providing a causal theory, the theory can be used to design policy implementation strategies that are integrated in systemic structures through transforming the systemic behaviour and performance. The causal assumptions are interconnected and are reflected upon, reformed, or their policy significance is discussed (Lane, 2008).

5.2.2 Design-Driven Policy and Decision-making

One of the frameworks that support design-driven policy and decision-making is *dynamic systems thinking*. Dynamic systems thinking (Atkinson, 2015) recommend that policies should be based on active participation of actors; an understanding of the health system context, health professionals' mental models, and relationships among the diverse determinants of health and the feedback loops. Policy design, which is established on an understanding of these variables, for example, the health system context, health professionals' mental models, perceptions or relationships among actors, is generally well acknowledged, centred on recognized ownership and implemented by front-line health practitioners (Swanson, 2012).

Front-line health practitioners take the initiative to utilize design-driven policies by developing innovative strategies which have been adapted to the local context, thereby improving health service delivery and strengthening the whole health system. By using the qualitative system dynamics approach to policy design, development and delivery opportunities are provided to examine and observe the actors' mental models, perceptions and the health service implications in various scenarios (Sumari et al., 2014).

The system dynamics approach to policy design also leads to policy design-driven decision-making, which provides the clarification and operationalization of mental models (Fairchild, 2014). Reforms are required to transform leadership thinking, management approaches and pragmatic implementation of design-driven policies and decision-making (Halfon et al., 2014). The World Health Organization (2015), for example, cites a paradigm shift in how the health workforce is educated, organised and remunerated by designing and implementing health workforce strategies that have numerous possibilities to advance equitable access to health services and stimulate economic growth through employing qualified health professionals.

5.2.3 Policy Reform

Policy reform is a complex improvement process connecting variables, namely, clinical service delivery or organisational arrangements, governance, health information, financial, medical technology, and interpersonal modifications.
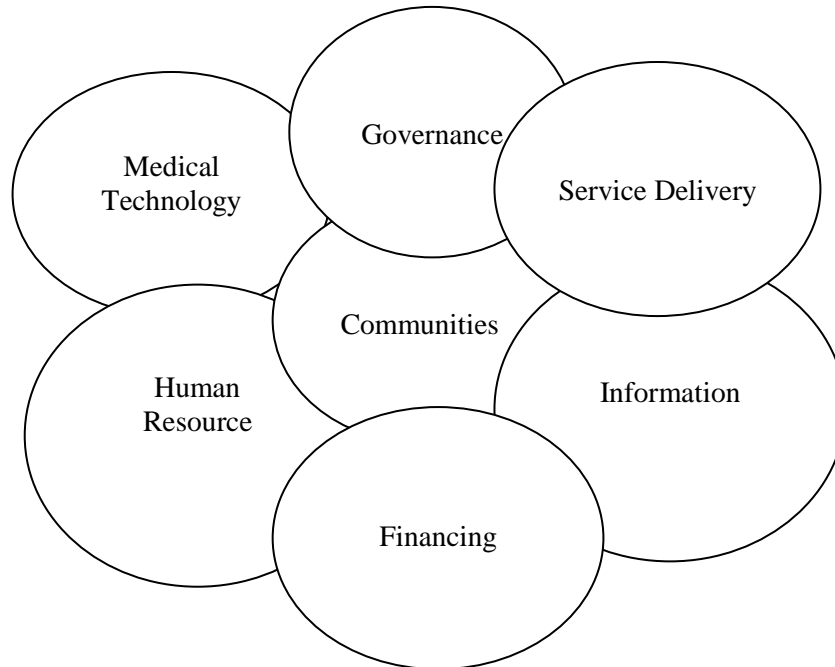
Figure 31: Policy Interconnecting Variables in the Health System
(Adapted from de Savigny and Adam, 2009)

In Figure 31, the diagram is a simplification in which each component actually consists of a multitude of sub-components and multi-layered interactions. A nuanced simplification of these interacting components was used diagrammatically to conceptualise the organisational messiness and visually reduce dynamic complexity by making interdependencies less entangled and more understandable (Morecroft, 2015). The numerous relationships and connections among the variables adapt to how one variable affects and influences the others, and the feedback structure effects dynamic complexity which transforms these variables into the health ecosystem (de Savigny &Adam, 2009). The benefits of a system dynamics approach to policy development and reform are improved understanding of causal relationships, the insights gained into the coordination or lack thereof between variable interactions, human resource capacity and patient needs (Rwashana et al., 2014). Inclusion of financial policies and performance data allows policy decision-makers to invest or disinvest (Health Partners, 2015). Policy options can be explored, for example, the financial tools such as patient fees, staff incentives, health service affordability, accessibility to health services and quality of services.

These inter-connecting variables are adapted into the health system as the processes are influenced by the actors' awareness of the benefits of the policy reforms and the degree of consensus amongst the actors. The effect of the interaction between the connecting variables and the context determines the policy fit to the context: an example which was investigated in Bosnia and Herzegovina, where the utilization of this holistic approach to policy reform, comprised complex and concurrent implementation among innumerable complex levels of the health system, and resulted in transparency, minimized policy resistance and improved acceptance and distribution of PHC policy reforms (Atun, 2007).

Policy reform in SA included HR policies on equitable distribution of health personnel, comprising a uniform system for the financing of personnel at all levels of health care and norms and standards for the selection and appointment of health professionals (NDOH, 1997). One of the objectives of these reforms was to determine an outline of human resources in relation to relevant skills and competencies required (NDOH, 1997).

Furthermore, the aim of policy reform in system dynamics redesigning health systems is that despite the complexity, the multitude of sub-components and multi-layered interactions, once competent managers understand these interconnections it enhances effective utilizing of these policies (Morecroft, 2015). Conservative autocratic paradigms to policy design, development, and delivery requires willingness to reform mental models of the leadership as well. The notion that policies are developed by dominant individuals, with limited contribution from implementers and end users' involvement, is counter-intuitive to decentralization of services (Gilson, 2003). Policy reform necessities include an understanding of the policy decision space, relevance, accountability and clarity to enact policies (Atun, 2010). Other systemic variables essential for policy reforms is the integral methodology to governance, HR practices, financing and service delivery (Porter, 2010).

Policy reform also involves transforming the way health services are provided and profound changes including, multidimensional and synchronized interventions at every levels of the health system that comprise various actors. Leaders in the health sector require robust capacity to increase the active participation of actors in different functions of various sub-systems within the health ecosystem. The system dynamics approach to policy reform allows for fundamental integration through utilizing innovative strategies and current evidential policy analysis provides opportunities for service trade - off designed for policy choices. Policy scenarios which previously were not considered can be explored, for example, specialist recruitment by participatory policy design through multidisciplinary communication, knowledge synthesis, collaborative decision making and implementation (Atkinson et al., 2015).

5.2.4 Decentralised Governance and Policy Design, Development, Delivery

Integral thinking and systemic methodologies in policy design, development and delivery are the leader's responsibility in the decentralised governance health structures (Gilson, 2012) that need to direct diverse and fragmented health services towards attaining a unified, integrated, comprehensive health system. The skills which leaders require to ensure effective governance of policy implementation include communication and negotiation skills (Burian et al., 2014); for example, clarification of how health priorities and changes are negotiated and what the core values and principles in the health system are. Other skills which leaders require are strategic vision, technical expertise, and political, organisational and administrative competencies to enable transparent participation among numerous actors (Olmen, 2011).

Health policy implementation is rooted in complex systems and frequently, policy guidelines for routine operational managerial decision-making are ineffective for policy design, analysis and governance. Actors in these complex systems act in non-linear, unpredictable ways, which cause challenges for decision-makers to implement standardised managerial approaches. One of these challenges experienced in KZN DOH was, for example, to improve the recruitment of specialists; financial incentives were introduced but the imbalances on inter-related sub-systems like governance and information sub-systems resulted in counter-intuitive behaviour which was reflected in a lack of transparency, accountability, tracking and reconciling payments (KwaZulu-Natal Department of Health, 2015).

Another challenge is the deep-rooted habit of mental models in developing extensive target setting which is susceptible to the preference of one sub-system at the expense of other sub-systems. The results of these biased mental models were delays, apathy and policy resistance (Atkinson. et al., 2015). The White Paper for the Transformation of the Health System in South Africa, which is relevant to this study, includes policy guidelines on restructuring the health sector, developing the human resources available to the health sector and a National Framework for the Training and Development of Health Personnel.

Moreover, the policy on National Framework for the Training and Development of Health Personnel clarifies the positivism paradigm in which HR skills, experience and expertise of all categories of health personnel should be used optimally to ensure maximum service coverage and cost-effective service delivery. Guidelines on training of doctors note that the demographics of the specific province, based on health service needs, should be considered for the intake of doctors. In addition, the guidelines state that systematic reviews of the training of health personnel should be regularly conducted to meet the changing health needs.

Besides, active participation of relevant actors in training programmes should be designed by enrolling and developing personnel who are skilled, competent and responsive to the health needs of the communities they serve. Qualified, knowledgeable and experienced health practitioners are mandated to implement policies which align to Batho Pele or people first policy that will promote equal access and appropriate utilisation of integrated health services. The focus of integrated health service provision is on the vulnerable groups, for example, the elderly, new-born, mothers and children, in rural, peri-urban and among the urban poor. These strategies of integrated health services are an attempt to overcome the apartheid fragmentation. Integration also endorses greater equity between rural and urban communities and between individuals accessing the public and private health services, including health care financing policies based on the Public Finance Management Act, which were developed. The NDOH had recommended that the national organisational structure includes the following components and sub-components to ensure policies are implemented by Provinces at the various levels of care (NDOH, 1997).

POLICY CO-ORDINATING UNIT

Policy and Planning Branch

National Health Systems: Chief Directorate

Hospital and Academic Health Service Complexes: Chief Directorate

Operational and Technical Policy: Chief Directorate

Health Resource Planning: Chief Directorate

Systems Development, Legislation and Policy Co-ordination Directorate

Hospital Development: Sub-Directorate

Health Services: Directorate

Health Finance and Economics: Directorate

AHSC Development: Sub-directorate

Human Resource Planning: Directorate

Health Facilities: Directorate

Figure 32: NDOH Policy Organisational Structure (Adapted from the South African - White Paper for the Transformation of the Health System, 1997)

In Figure 32, the NDOH components were structured for policy development, monitoring, evaluating and implementation. The various components at NDOH are responsible for different functions which are aimed at developing norms and standards for health services, designing basic packages of care, developing systems and methodologies for quality assurance, planning of national health care finances, costing models, audit tools for human resource availability, equitable redistribution and appropriate skill mix. Provinces are responsible for implementing these NDOH policy guidelines within the provincial context. In analysing the implementation of the NDOH policies, the challenges which are encountered in the provision of tertiary services at provincial level include the lack of HR norms, for example, the number of specialists per clinical discipline has not been developed. The impact of the lack of norms on specialist training and employment in provinces is that the inequity

among the provinces continues to exist, causing imbalances in the health system. Also, the norm for the number of doctors per bed for in-patient services and for clinical procedures in tertiary hospitals is absent, causing imbalances in the clinical sub-system. Another challenge is that the NDOH costing model which should inform policy direction and cost-effective employment of health personnel, is still outstanding from the NDOH; thus, the negative feedback in the health ecosystem surrounds disparities in allocating health resources (NTSG, 2017/18).

5.2.5 Health Policy Guidelines in Developing Human Resources

The policy on developing human resources for health provides guidelines, and the placement of health personnel is intended to promote the utilization of proficient, compassionate and critically-minded multidisciplinary health teams. Health Professional training and development have academic standards for various categories of professionals. Norms and standards for clinical practice are developed by DOH in consultation with the related examining and statutory organisations.

However, policy implementation requires insights of contextual systemic elements, including the complexities among the various types of norms and standards. The lack of integration among the various components within the NDOH is reflected in the silo approach to policy design, development and delivery. Each component functions as an independent sub-system, resulting in duplication and inefficiencies in service delivery.

To overcome this fragmented approach, an ontological perspective of the organisational culture reflecting change management, participatory leadership and systems thinking in the health sector can be used as an opportunity for health policy and planning needs to be strengthened. Also, research conducted on how HR policy implementation affects the use of workforce in health care noted that although the management authority is decentralised from NDOH to the provincial and district levels to ensure autonomy, the skills to manage a decentralised health service still requires development. Likewise, systemic and organisational structural challenges reveal that the vertical elements of the health ecosystem cause negative feedback on governance principles among the decentralized management (Gilson, 2012).

5.2.5.1 Leverage for Change in Developing Human Resources Policies

Current organisational, managerial and financial governance mechanisms could be used as leverage for change initiatives, for example, capacity development among inter-disciplinary staff diversity and organisational managers (Uzochukwu et al., 2016). Other leverage points for change in policy are to overcome command and control attitudes which dictatorially prescribe copious patient records and detailed health delivery strategies, to include simple rules which allow local practitioners to use

innovative approaches which enhance health proficiency and quality service delivery. Transforming health professional training curricular and conducting health systems impact assessments on the dynamic complexities which will have long-term positive effects, can also be utilized as leverage for change (McMahon & Chopra, 2012).

The results of the health ecosystem contextual impact assessments can be used to integrate policies for capacity development in the production of health professionals. By developing administrative and organisational strategies that influence resource allocation (Bakari et al., 2017), funding and infrastructure variables to balance HR policies that will integrate input and results-based supply and demand of health personnel can be generated. Including policy design in the health science curriculum will help health professionals develop their systems thinking techniques and engender a participative organisational culture (Cummings et al., 2014). Thus, creating these incentives for HR development integration of clinical and administrative policies guidelines improves understanding and results in health professionals delivering on organisational goals.

Systematic engagement and iterative feedback to key health actors (Morecroft, 2015) and funders of the health system, and lobbying for policy recommendations to the decision -makers, reassures ownership and policy implementation. HR policies which are verified by actors provide clarity on roles and responsibilities, the certainty of governance and support, and outline the consistency of service delivery which is acknowledged and well utilized. This interactive policy development approach encourages participatory learning which serves as leverage for policy reform and a mechanism to empower actors in improved understanding, decision -making and service delivery (WHO, 2015).

5.3 INTANGIBLE EFFECTS OF POLICY CHANGE AND IMPLEMENTATION

In this study, the system dynamics approach examined the consequences of HR policy implementation which allowed decision-makers to explore, for example, how tertiary hospitals deal with high attrition of specialists. HR policy implementation requires balancing performance of the dynamically complex health system with recruitment, retention and enabling strategies to ensure provision of quality patient care. The workloads of all categories of staff, for example nurses, doctors and allied health staff, need to be considered to improve both equal access to service provision and more efficient utilisation of specialized staff. Doctors and nurses form the backbone of tertiary service provision. Furthermore, clinical allocation at night is provided by the nurses and junior doctors. Nurses and junior doctors remain on site in the hospital overnight, with senior doctors as consultant specialists in charge of a clinical discipline normally consulting from home. Consultants are available

to be called to the hospital if a patient's condition deteriorates or a complication arises. Usually, a junior doctor is allocated to work a full day, followed by an overnight period on-call and then work the following day, with a total of forty hours per week.

The HR practice policy does not stipulate scheduled or a minimum number of hours rest concerning constant uninterrupted times of work or that no doctor working a night duty call will be permitted to work at any time during the previous or following daytime. Doctors are expected to work a full-shift which involves longer, more frequent calls that usually cover the day and night shifts. HR practice policies require new work configurations as time allocated for shift work has indirect effects on the morale of doctors.

Thus, the HR policies require an impact assessment of current skills mix of staff establishments in relation to the changing needs in the health ecosystem. Due to changes in the duration of training of specialists, the work–life balance, and other working condition complexities, HR practice policies need to be redesigned. Working conditions determine whether doctors are retained in the health ecosystem. Morale is fundamental to doctors' decision-making process and is an essential principle as to whether they stay or leave the medical profession. Consequentially, doctors who are overworked give rise to low self-confidence, low self-esteem, and burnout, which have a direct impact on the rate of doctor attrition. Inevitably the lower doctor's morale the higher is the rate of doctor attrition. Also, more frequent the medical shifts, exhaustion and low morale have resulted in increasing clinical errors and medical litigation. The systemic feedback between these intangible effects of HR policy change has resulted in human resources, which is regarded as an asset in the health ecosystem, requiring stock adjustments (Masnick, 2010).

5.4 POLICY DESIGN, GROWTH AND DYNAMIC COMPLEXITY

In this study, focused analysis was intended to understand the variables influencing human resource policy design, organisational growth and dynamic complexity in the rate of specialist recruitment within KZN DOH. The rate of specialist employment is influenced by the staff deficit and the length of time it takes to recruit specialists; this systemic process is referred to as HR stock adjustment. Furthermore, Ahmad (2010) described workforce deficit as the difference between the target number of specialists and current number of specialists. Stock adjustment will necessitate the production, employment and working conditions of specialist workforce HR training, recruitment and retention policy reform. Flexibility in specialist work patterns, roster allocation, incentives for work performed and integrating HR practice and financial management policies result in balancing the systemic relationships. This transition in policy integration will require an increase in the number of specialists

being trained, recruited and retained. Another policy which requires review is the redistribution of specialists, the optimal utilization of skill mix and appropriate shift allocation (Morecroft, 2015).
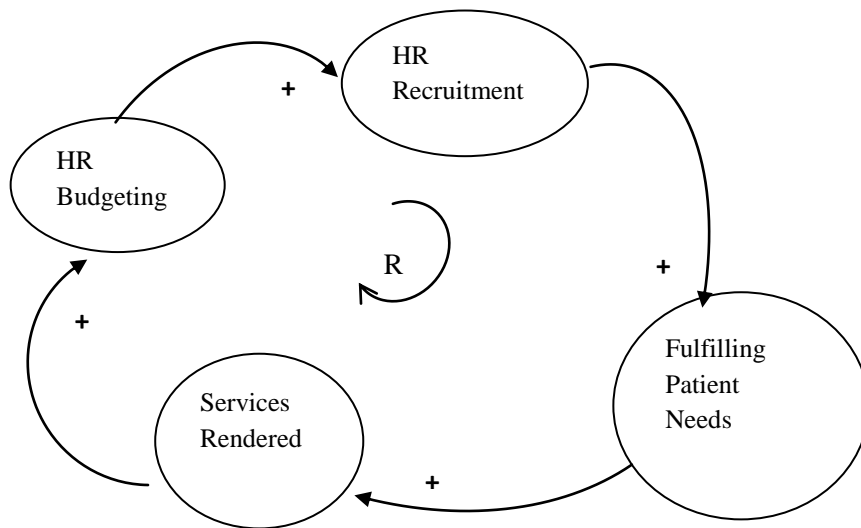
Figure 33: Overview of Policy Structure driving Growth (Adapted from Morecroft, 2015)

Changes in the health ecosystem give rise to fluctuating imbalances which require constant policy change (Thomas, 1998). In Figure 33, the coordination of specialist production capacity with recruitment and patient demands are interdependent variables in this dynamic environment which influence growth and policy development. The interdependence among variables is also shown in Figure 33 as systemic feedback reinforcing the HR growth loop, which arises because HR recruitment is influenced by HR budget allocation and patient needs are driven by clinical services rendered.

Successful policy implementation is dependent on the patients' perceptions of quality of service delivery, waiting times, attitudes of staff and management, rate of utilizing services and their response to treatment. The feedback structure to make informed decisions for policy redesign is dependent upon systemic inputs and the interaction between variables, for example, service delivery delays; shortage of specialists, patients' complaints or funding constraints.

When specialist capacity expansion is balanced with patient service demands then the health system will remain stable. The equilibrium theory explained by True et al., (2007), describes policy practices which are categorized by essentially augmented change over epochs which remain constant. Capacity expansion depends on the policy processes to overcome delivery delays and effectively functioning HR practices on the investment as decided by the top management. Policy reforms are a high leverage for change; for instance, as the pressure of these policy processes increases, the greater is the need to invest in capacity expansion and the more effective is the balancing of the health ecosystem and sustainable growth. Linking confident investment with well-designed policies will release increased

market potential. By changing policy processes towards increased investment as well as improved coordination of specialist production, capacity with recruitment and patient demands are enhanced. When patient demands decrease, the policies will require review to reduce production of specialists thereby ensuring equilibrium in the health ecosystem (True et al., 2007).

5.5 RETHINKING HEALTH SYSTEMS STRENGTHENING, POLICY DESIGN, DEVELOPMENT AND DELIVERY

5.5.1 Policy Space in the Health System

The health ecosystem policy space is subjective to policy leaders managing the interactions between contextual factors, the conditions influencing clearly outlined policy processes, and appropriateness of the policy content. Analysing contextual elements in the policy space of health ecosystem results in an attempt to gain in-depth understanding of the commitment to implementing current policies, is the reason for the occurrence of fluctuations over time, or mapping the opportunity for changing specific policies which have been neglected. Furthermore, policy leaders who work inside a policy space become sensitized to policy processes, encourages the degree of intervention and motivates policy reforms as well as inspire health personnel towards policy enactment.
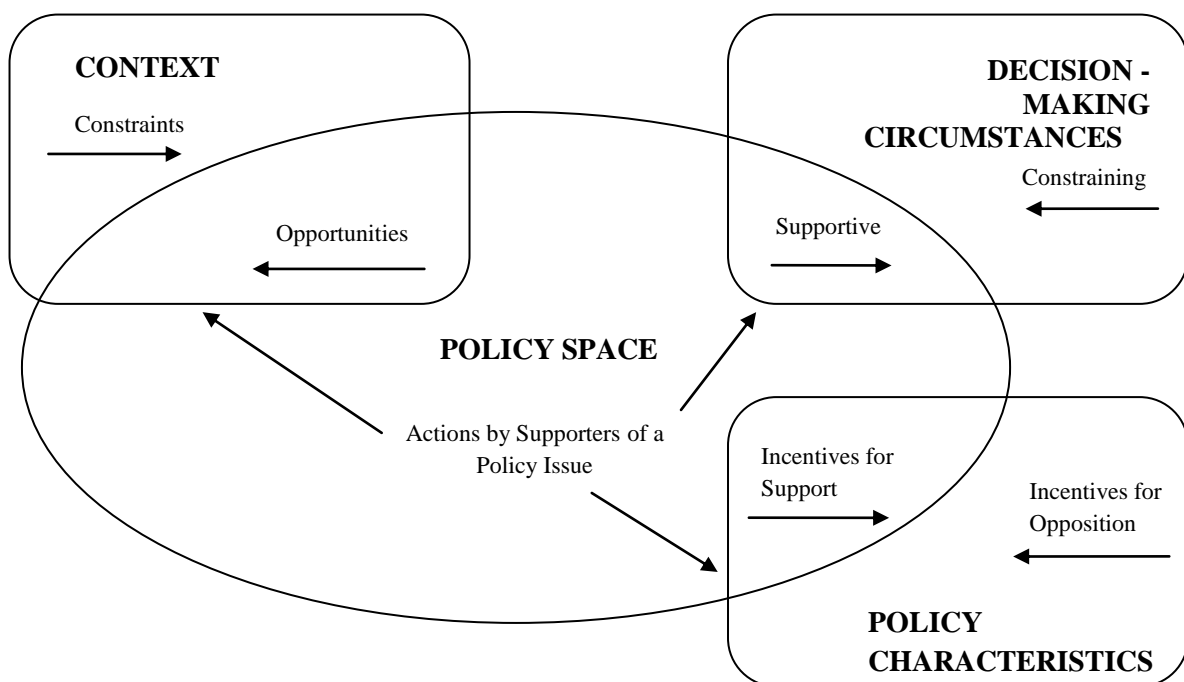
Figure 34: Factors affecting Policy Space (Crichton J, 2008)

In Figure 34, the factors affecting the policy space interconnect among the variables. These variables are contextual factors, decision-making circumstances and policy characteristics. Contextual factors form the conditions for policy leaders to make decisions concerning certain policies at specific times.

The preceding conditions in the policy space are the contextual factors which influence manifestation of policy processes. These conditions provide opportunities or present constraints for policy leaders to prioritize the policy subject. Contextual characteristics like historical events, as well as social interactions, cultural beliefs, political priorities, fiscal status and demographic features, influence policy decisions. Other events such as epidemics, droughts or economic constraints, also shape policy (Kingdon, 1984).

Similarly, policymakers are challenged by contradictory effects on policy space in which factors like competing global issues, limited resources, international structural trends, growing diversity of actors and fragmentation of services and various sources of funding exist (Buse, 2002). Policymakers who are reluctant to interpret or analyse research reports or are unaware of the availability of research findings and sources of research, usually rely on external consultants to inform the policies processes.

Thus, policy leaders' values, proficiency, experience, inspiration and trustworthiness impact their motivation to policy change, and their realization in supporting specific policies. The dynamics of decision-making is dependent on the policy makers' awareness of all variables affecting a policy issue. Likewise, policymakers' perceptions influence how management decisions are taken, the earnestness with which decisions occur and the extent to which risks are taken. Policy circumstances are dynamic and are determined by policymakers' perceptions, for example, in determining whether circumstances are regarded as a crisis or business-as-usual.

When policies are perceived as crises, then policymakers undertake fundamental changes in the prioritization of issues and act in accordance with the political pressure. If the policy makers' perception is not urgent, decision-making is controlled by administrative and bureaucratic costs and benefits are considered (Gilson, 1994). Policymakers' perceptions function as a connection between the entrenched mental models of individual actors and cultures and the changes deliberated by management decision-makers when challenged with precise policy choices. The scope of practice for policymakers is influenced by their mental models, their decisions, prioritization and the policy characteristics. These decisions result in forming ethical principles of the policy, as well as public and administrative motivations to support or oppose specific policies. Likewise, these motivations influence policymakers and strategy managers' decisions in material and HR resource allocation and the necessity to clarify fluctuations over time due to the policy prioritization and implementation. Policymakers can expand the policy space by engaging various actors to form partnerships and agree on policy characteristics (Thomas, 1994).

Equally, provision of on-the-job training and participatory didactic programmes for policymakers and policy managers, and the establishment of participatory policy environments to consider developing

practice guidelines enhance the policy space. These developmental programmes also strengthen an organisational culture of dialogue, and provide an opportunity for policy practitioners to nurture their potential and to represent authentic local concerns, needs and interests. Furthermore, strengthening the health organisational systems representing actors participating in policy processes, including decision-makers or policy designers and patients using health care services, all add valuable inputs to policy progress and improvement actually signifies expanding the policy space. Power imbalances can be reconnected through purposive mindset, by dialogue among actors linking different government departments and developing a policy space which provides an opportunity for transparent communication.

Additionally, counter-intuitive behaviour among actors can cause policy resistance through incongruent policymakers' worldviews and these actors' incentives. Another variable to be strengthened is interaction among actors involved in managing and providing health services with the publicly ingrained functions and administration processes of health care establishments occupying the policy space, thus contributing to systemic balance. Systemic balance is achieved as actors actively implement integrated policies.

There is also a critical need to reinforce national established structures for policy leadership roles, ensuring effective stewardship, and to established policy agendas for national health policy. National and provincial public health managers are in a privileged role to connect experiential, practical knowledge of health practitioners and the universal expertise of international agencies. Incentives for these policy decision-makers and policy managers must be supported monetarily; they must be fundamentally ethical and morally upheld to provide stable leadership to policy initiatives (Healey, 1993). Studying the complexity of policy space, policy processes, or policy implementation experience is just as significant as cutting-edge information for future policy development as identifying mutual configurations through a massive quantity of health establishments (Thomas, 1994).

5.5.2 Policy Processes and Power Relations Influencing Actors

Policy processes as depicted in Figure 35, is inclusive of the sociocultural and political context, variable principles like consultation, training, supervision and power relations influencing actors and informs policies and policy norms.
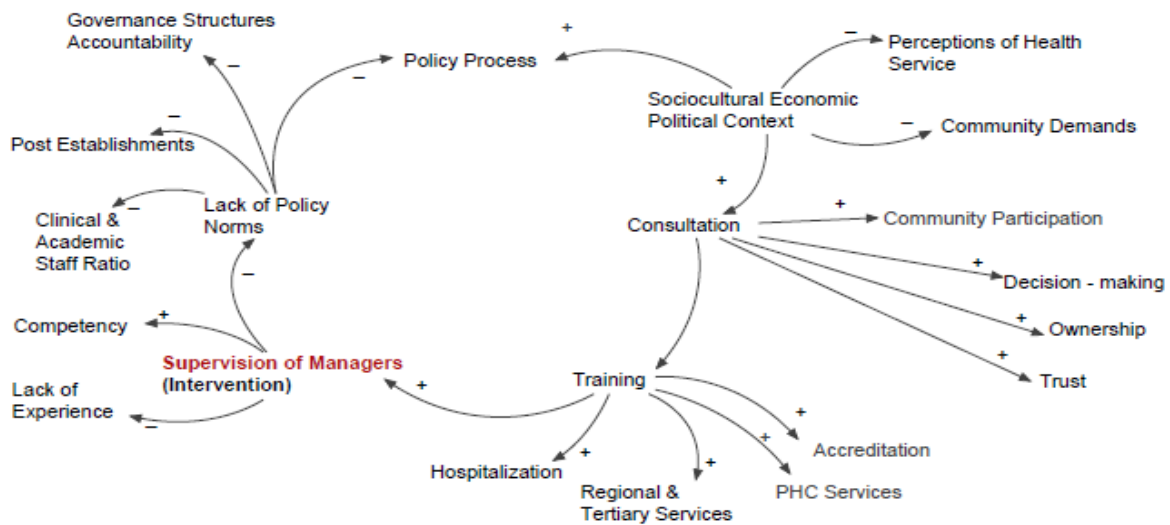
Figure 35: Policy Processes and Power Relations Influencing Actors

The relativism paradigm of power relations influencing actors' understandings and experiences of different types of policy interventions are determined by community demands for curative care, perceptions of health service, the context of the sociocultural-economic realities of communities, community participation in policy design and policy managers' attitudes to implementation processes.

Also limited consultation, training or supervision of managers results in lack of ownership and decision-making by local governance structure members. The fragmentation of the policy process among different governance structures and spheres of government results in lack of trust among actors. An example of the lack of trust among actors in governance structures and systemic cohesion is the fundamental difficulties in the referral system's structure policies.

Operationalising policies on referral system's structure, which patients have no confidence in, has resulted in the under-development of PHC services as well as in district and regional hospitals. Tertiary and central hospitals have become overdeveloped, and patients choose to be hospitalized (KZN Patient Referral Policy, 2015). Inappropriate hospitalization sequentially has resulted in expensive treatment of patients at tertiary and central level hospitals, while district level hospitals and PHC services are underutilised. Furthermore, tertiary hospital post establishments lack of policy norms, which results in unclear management governance structures and line accountability. In KZN DOH, posts for senior specialist used to be on a Joint Medical Establishment (JME) (KZN DOH APP, 2019/20). These JME posts were occupied by consultant specialists who were joint appointments with the university medical school and DOH academic tertiary hospitals. The responsibility of these consultant specialists included academic teaching, supervision and clinical practice. Once these JME

posts were vacated, the DOH froze these posts with no replacements implemented. This freezing of posts resulted in the tertiary hospital's organisational structure not having been reviewed since 2009 and consultant specialists are forced to borrow posts from other clinical disciplines to fill specialist posts to meet the patient demands.

Another consequence of these fragmented HR policy processes resulted in tertiary hospitals losing HPCSA accreditation. This loss of accreditation means clinical training of registrars cannot be conducted in these hospitals as academic requirements cannot be met. The disequilibrium in the health ecosystem caused by senior specialists leaving and posts for head of clinical departments frozen, while the remaining specialists have too many after hour calls to work, resulting in burnout and further attrition. HR policies which were implemented to fill critical posts in 2016 included certain specialist ranks, yet the lengthy HR practice ratification processes still caused delays in filling of these posts.

Several non-implemented organograms exist and managers are expected to act in posts which have been occupied by staff who were transferred due to unresolved HR labour issues. Hospitals are central structures in the health ecosystem and this lack of policy decision-making on tertiary hospital staff establishment structures has caused loss of trust among actors and managers. This particular group of actors constitute the FG in this study. Policy processes which support local community and management governance structure participation that has clear guidelines, decision-making, specific training schedules and regular supervision with monitoring mechanisms, are trusted by implementers (Gilson, 2001).

In this study, actors from the FG in their individual capacity accountable for their roles and responsibilities explained that the policy context, processes and implementation in the health system is thus biased towards individualized descriptions. It cannot be asserted that the context of four tertiary hospitals in different geographical areas of KZN captures the entire South African situation. However, the observed findings from FGD noted that this systematic exploratory method represents reliable insights into public health policy processes in South Africa. Moreover, lessons learnt on policy processes from other frameworks also offer recommendations on how analysis of policy space could be utilized extensively in health policy exploration and reform (Focus Group).

5.6 POLICY SYSTEM DYNAMICS FEEDBACK, BALANCING RELATIONSHIPS AND EMERGENCE

5.6.1 Policy System Dynamics Feedback and Balancing Relationships

Developing governance structures which are systemically designed to be adaptive, rather than mechanical, and actors who understand dynamic complexity, systemic and human behavioural interaction, can motivate policy reform away from regulatory specificity and towards flexible approaches. Adaptive systems create enabling environments to encourage local intervention by actors who respond to policy reforms and embrace uncertainty (Gilson, 2012) and this is also applicable in health decisions.

The system dynamics approach to policy analysis envisages unplanned concerns of policy reforms and at times unanticipated emergent behaviours. Examining, for example, the impact of workplace pressures, morale and specialist attrition on the implementation of policy reforms, results in emergent behaviours and development of new feedback loops which illustrate the complexity of medical workforce dynamics.

Exploring interactions among different actors results in divergent, unpredicted outcomes and systemic behavioural patterns emerge as the system is constantly self-organising through processes referred to as emergence and feedback (Williams, 2010). Adaptive systems which provide networks and an enabling environment, resulting in emergent behaviours and new feedback loops, for example, when aassessing management efficiency by engaging multi-professional committees which represent the Public Service Commission, DOH at all levels of governance, employees, the communities and labour relations experts.

Long-term progressive health effects can be supported by the advancement of systemic interconnectedness and the ability to measure multi-sector effectiveness through relational feedback loops, thus ensuring the health system can be optimized over time (Morecroft, 2015). Inadequate health system capabilities inhibit governments from implementing priority universal health programmes, hence the endorsement of global health policy networks to promote the development of health ministries in accepting financial and technical assistance (WHO, 2015).

5.6.2 Policy System Dynamics and Emergence

The emergence of these networks, and the structure and effectiveness of health ministries have been analysed by researchers. Researchers of developing world health policy found that there is minimal systematic responsiveness to the interactions between accepting the nature and quality of the health systemic interconnections and prioritizing health policy programmes (Walt et al., 2004). Likewise,

one of these studies which were conducted by Reich et al. (2000) examined the emergence of effective public-private partnerships that linked governments, pharmaceutical corporations and international establishments in which legal structures were designed to find solutions to specific health problems. Although the focus has been on the emergence and systemic arrangements of diverse health networks, there has been limited research on the analysis of how these health networks influence national priorities. Thus, the notion policy transfer was conceived (Stone, 1999).

5.6.2.1 Emergence and Policy Transfer

Policy transfer refers to understanding the policies or administrative arrangements in a specific context at a particular time and to advance similar measures in another context and at various times (Marsh 2012). Stone (1999) identified three methods of policy transfer: voluntarily, with compulsion and via structural forces. Voluntary policy transfer may occur if leaders in one country import significant concepts and policy designs from elsewhere of their own accord. The second type of policy transfer is when financing organisations like the World Bank threaten to withhold loans to countries; this is referred to as policy transfer with compulsion. When policymaking leaders are inactive, then policy concepts are designed in national systems through practices that researchers often refer to as convergence and these transfers of policies may be via structural forces. Studies which Kamuzora (2007) and Swanson et al. (2012), conducted on policy transfer, have focused predominantly on the consequence of policies transferred across national borders. Furthermore, researchers investigating policy agenda setting have deliberated on these policy transfer processes primarily within national political systems (Stone, 2012).

5.6.2.2 Emergence and Policy Agenda Setting

Shiffman (2003) conducted a study on notions of policy agenda setting to describe the emergence of political priority for safe motherhood in Indonesia. Concepts explained in that study include agenda setting and developing indicators. Policy agenda setting is the first stage in public policy process through which definite problems escalate to eminence while other issues are abandoned. This stage of policy agenda setting is followed by policy design, the enactment of mandatory decisions, and policy implementation. Kingdon's streams model (1984) contributed to the theory of agenda setting; problems, policies and politics which face societies, and shaped policy agendas. Policy stream denoted a selection of options which researchers, politicians, administrators, and various actors recommend addressing and how national problems may be solved. Other variables influencing the policy agenda are fluctuations in the political structure, public unrests, governmental elections and global political events. These systematic elements in agenda setting influence possibilities for which issue is determined as priority to obtain national attention; for example, in SA the issues of shortage of specialists is addressed in national policies on HR for health (NDP, 2011). National policymakers'

focus of attention on agenda setting is usually intensified if there are clearly defined, measurable indicators formulated. According to Kingdon (1984), indicators provide transparent measures for monitoring systemic behaviour and are catalysts for policy achievement and transformation.

Another influential element in policy agenda setting is what Kingdon (1984) referred to as political entrepreneurship, in which politicians or organisations seek opportunities to lobby for their proposals, create systemic momentum and advocate for change. The third element in shifting national policy agendas is the incidence of concentrating events, for example, national protests, emergencies, conferences, calamities and innovations that invite attention from extensive actors. This systemic shift results in substantial media reporting, mass community mobilization and policymaker responsiveness, thereby impacting on national policy agendas. An example of this systemic shift in national policy is the SA policy on combating HIV and TB in SA (NDP, 2011) Facilitating factors, which strengthen policy agenda setting, policy formulation, decisions, and policy implementation, are training programmes, financing programmes and technical support with explicit goals which develop health leaders and the institutional capacity (Gilson, 2012). As I engaged with the literature on national policies, it showed an example of policy agenda setting in the HIV and TB policies in SA. This is evident in the emergence of collective decision-making power and cooperative relationship among national and global administrators and donor organisations that enabled shared resources, coordinated strategies and collective functioning to promote policy priorities nationally. Gilson (2012) further described this interactive systemic policy process which inspires local governments to develop contextually-relevant implementation strategies.

5.6.2.3 Emergence and Leverage for Policy Growth

High leverage factors designed for sustainable policy growth are effective investment and capacity expansion, which ensures balanced systemic feedback (Morecroft, 2015). An outline of the policy structure provides an understanding of health ecosystem, of how central information flows though management's bounded rationality and their distinguishing traits of organisational decision-making, which convert into the health policy system feedback structure. Sterman (2000) described bounded rationality as managers relying on routine procedures, traditional habits, guess-timates, and conservative mental models to make decisions, as the overwhelming dynamic systems complexity of the real-world contexts and time pressure force them to depend on their mental models and past experiences. Bounded rationality limits the manager's ability to learn from experience and confines their objectivity in making rational decisions, or considering, for example all available sources of information to influence optimal return on investment and resource utilization. Similarly, complexity of the health ecosystem is usually immeasurably simplified by the managers' cognitive maps of the causal structure of systemic disequilibrium. The principles of bounded rationality became evident in

this study, as observed in KZN DOH when managers function in individual subunits such as in HR and finance. Their understanding the complete systemic feedback structure on decision-making is ineffective, for instance, finance managers' unilateral decision on cost containment and restricting HR filling of specialized allied staff posts negatively impacted on service delivery, causing patient delays in accessing specialized services (KZN HRM Cir. 62.2016). Thus, understanding the distinctive managerial attitudes toward investment provides feedback on the management's bounded rationality and differentiating characteristics of decision-makers in the organisation. Evidence such as policies which are silent on investment reflects management's deficient decision impacting on lack of investment in HR, infrastructure and maintenance, which requires major capital investment in the hospital sub-system (Morecroft, 2015).

5.6.2.3.1 Emergence and Leverage for Policy Growth through Investment

The decision to develop comprehensive capital investment plans will result in interactive systemic feedback impacting on the improved HR recruitment, physical state of the hospitals, better designed buildings which effect efficient patient care and reduced high recurrent costs. Combining positive investment policies with relevant stable operating strategies can unleash emergent systemic behaviour as shown by shared decision-making power and cooperative relationships. Collective decision-making and cooperative relationships will enable contextual organisational structural policy change to develop skills mix on staff establishments, which can result in real efficiency gains and contribute to rationalisation and redistribution of scare specialist skills (Morecroft, 2015).

The policy on decentralisation of management from provincial control to hospital managers with necessary delegations requires a system of universal management practices to unite and integrate operational management, and enable administration structures within hospitals. Balancing systemic relationships, for example by implementing cost centres and functional units as core sub-systems in the management structures within hospitals, will strengthen the decentralization of management practices. Policies for hospital managers' performance require distinct emphasis and substantial managerial autonomy in relation to the decision-making, HR recruitment, budget allocations and service delivery. Hospital managers' delegations should include flexibility to manage daily operations, through senior managers trusting their ability and accountability to make decisions relating to recruitment of hospital personnel, procurement of goods and services and financial management (NDOH, 1997).

Likewise, adaptive systems also balance goal formulation with supply and demand of HR. In managing the systemic balance between supply and demand of specialists and goal formulation, various sources of information flow are required. Information on capacity shortage and service

delivery delays can be used to develop policy, provide strategic direction and remedial action motivating an improved investment or disinvestment.

Different approaches to capital investment, namely, a finance-driven approach, a planning-driven approach, or an operations-driven approach, each rely on different sources of information. Arduous financial calculation might validate investment in terms of using information about projected revenue, escalating price of medical machine and global exchange risk rates. An evaluation of these policy choices is based on the availability of funding that invariably limits investment when the organisations' financial resources are limited, whereas the other two sources of information, estimate patient demand and the disease growth target, are completely different from the financial criteria. This information proposes that the management team's decision to develop investment policies is determined by a realistic HR plan based on patients' needs or vision for the future service delivery, rather than financial performance.

Other emergent policies are for example on distribution of hospital beds, or transferring funds, staff and medical equipment or material resources from urban to rural hospitals, and from costly tertiary hospitals to more economically viable regional and district hospitals, which will require an in-depth understanding of the organisational dynamic complexities, systemic and human interconnectedness before policies can be transformed.

5.6.2.3.2 Emergence and Leverage for Policy Growth through Capacity Expansion

HR policy research in international experience recommends that hospitals with academic functions escalate unit costs by thirty to forty percent. In SA, academic central and tertiary hospitals have more substantial HR policies for staffing levels (Econex, 2015) than do regional hospitals, and the unit expenses are beyond forty percent greater than other hospitals. The objective of these polices is directed towards optimising staff's academic development and sustain good ethical clinical practice. These HR policies intend to attract and retain skilled personnel in teaching and research posts, and limit any unnecessary expenditure concerning academic activities.

Fluctuations in the dynamic health ecosystem require a shift in organisational culture, management thinking and decision-making from only using academic tertiary and central hospitals for teaching specialists, to including regional and district hospital hospitals as well. Another transference in organisational culture is the mindset shift from a belief of "rules and regulations" to a paradigm of accomplishing tasks, meeting patient and specialists needs and reaching learning targets (Morecroft, 2015).

Organisational performance and HR policies require significant enabling strategies in creating circumstances that decrease risks of burnout and compassion fatigue among specialists, and encourage health professionals to remain healthy, ensure job satisfaction and are more productive (Portnoy, 2011). Reorganising existing systems to sustain decentralised management and promote efficiency and flexibility will require policy transference and organisational structural changes.

Useful structural insights are the systemic relationships between patients' needs, patient backlogs, level of service, for example PHC or tertiary services, and the quality of service delivery to inform policy design and organisational structural changes. Another shift in organisational culture is that hospital managers have a mediating role in balancing supply and demand of specialists in relation to the patient demands.

Policy transference to increase capacity utilisation requires systemic feedback to accomplish this change. Integral systemic relationships between HR, medical, nursing and finance managers, specialists and hospital managers, require an audit for identifying whether or not there is a HR capacity shortage. Calculating the supply-demand balance, goal and policy formulation facilitates the establishment of a suitable standard for managing this balance. This information flow to determine capacity recruitment enables management to take corrective action leading to HR investment or disinvestment.

The core of these systemic processes is coordination between operating policies, HR capacity, service delivery delays, HR recruitment, and investment or disinvestment. Current HR policies in KZN DOH necessitate review to capacitate hospital managers who have the delegations to recruit specialists and adjust capacity to patient demands. Hospital managers can then consider alternative information sources by making informed decisions and being accountable for the investment approach. In formulating the policy for HR expansion, the organisational senior managers need to justify the rationale for recruiting various categories of staff. Senior managers' mental models influence the policy and managerial approach to HR expansion. Another significant explanation to policy and managerial approach is the prerequisite of budget-driven policy or a forecast-driven policy.

Information networks and the resulting feedback structure indicate that each approach to recruitment is valid, but in reality, either is expected to govern (Common, 2017). Recruitment polices require information within the context of the health ecosystem, patient demand, growth goal, recruitment objective, budget, current number of example specialists, salaries, productivity and expected number of recruits. Information flows influence policy, for example, total budget for operating expenses for functions relative to revenue, or historical budget allocation. This myopic reasoning of policy budget allocation is also impacted upon by strategic and political dynamics. Hospital managers need to

negotiate between the systemic forces among finance, operations, clinical managers and formal planning to ensure systemic equilibrium is achieved.

In a reactive operations-driven approach, senior management is responsible for investment and are expected to provide specific response to accounting officers and governance principals on the capacity needs of the organisation as shown in current HR capacity data and impact on service delivery delays (Williams, 2010; Marsh, 2012; Atkinson, 2015) Thus, the counter-intuitive behaviour among clinical managers, hospital managers, finance managers and senior management results in a reactive-driven approach to policy development. For instance, when HR is understood as capital investment, is operations-driven and reactive, significant information from various sources flowing into the investment policy system are concentrated on reductionist thinking. A case in point are the fragmented programmes clinical performance indicators that focus on service delivery delay, target delivery delay, current capacity, and is shrouded by senior management preference. In this SD approach, it is inferred that investment needs to be equally practical and well-informed by data available from the organisational information systems (Atkinson et al., 2015).

The critical realism approach, investigates complex causality, conducts policy analysis and organisational studies to improve the researcher's understanding of the social reality (Archer, 2013). In a critical realism paradigm, the distinctive managerial attitude toward investment is justified by cautious senior managers who expect concrete evidence of increases in patients' clinical demand before deciding to commit to HR capacity expansion (Gilson, 2012). Policy resistance is reinforced by the tendency of discrete systems of meaning, the unstable health ecosystem context, perceptions of policy problems, delays in implementing challenge resolutions and decisions making.

Another constraint in policy implementation comprised differences between diverse actors' performance principles perceptions of core responsibilities and conforming to authority on policy directives or difficulties in collaborating policy concepts through the systems of meaningful engagement. These complex discursive gaps are a result of the lack of opportunities for scholarly interaction, interrelationships of unequal power among policy implementing actors and lack of accountability (Sheikh & Porter, 2010). Limited systemic understanding of the reasons for policy violations by operational staff requires in-depth empirical investigation. Future pragmatic health systems policy research to understand and clarify impacts of comprehensive health system performance and disparity across provincial health systems, for instance, conducting a cross-national analysis of disastrous health disbursement and over expenditure levels can influence financial policy change (Gilson, 2012).

The emergence of systemic thinking approaches to policy design transference goes beyond short-term policy implementation to aligning operational policy practices with universal policymakers' intentions. One of the critical success variables in policy design and implementation is the establishment of communications sub-systems between actors participating in public health policy processes and health service decision-makers. Also, developing systemic relationships will actualize these policy leadership roles among actors, resulting in long -term policy gains ((Sheikh & Porter, 2010)

Gilson (2012) cites Brugha (2003; Das & Hammer, 2004) as designing "evidence-based policy guidelines has emerged as a significant approach in health care policy" internationally for instance development of clinical guidelines in management of diseases. These policy guidelines are intended to serve as best practice benchmarks for delivering high quality public health care programmes. Thus, by creating a database of research reports, policy guidelines and a well-designed accessible online library encourages a system of networking and collaboration among policy actors. Another systemic change to the policy development approach is to create opportunities for a shift in the methods professionals, communities or government entities utilize governance structures to collaborate, optimize their collective strengths and allocate resources within the health ecosystem. Result Based Financing (RBF) (Atkinson, 2015) policies is one such approach in which policy actors are provided with flexibility by delivering on innovative results and optimizing the potential of these systems to achieve improved quality of services. This networking among policy actors strengthens cooperative relationships through an improved understanding of their roles and responsibilities in the governance structures which influence policy design and development and deliver on co-designed policy targets. Creswell (2007) referred to co-designed processes, which involve working together in collaboration with relevant stakeholders to propose novel policies, utilizing optimal collective knowledge, experiences and available resources, to achieve enhanced outcomes or value-added performance efficiency. Using an integral approach to co-designing policies is evidence of shifting the mindset from autocratic, monopolised leadership to participatory, decentralized, comprehensive interactions among relevant policy actors (Creswell, 2007). In healthcare services, co-design includes equal partnership of actors within the health ecosystem, which are staff whose experiences, knowledge and skill, patients and their families using the health system, and policymakers or researchers, collaborating to increase efficiency or design policy interventions to improve health systems (Ward 2018). This active participation of policy actors shifts their thinking from one of assuming that someone else is responsible to ownership initiative driven service delivery. An example of this initiative driven approach to improving service delivery is the RBF policy objective, which receives actors' inputs and links health delivery payment to pre-agreed targets and improved efficiency and quality outputs.

This design driven approach to policy development also requires systemic change in the provincial senior management and hospital-level governance as management is a vital driver in these policy processes. Dynamic decision-making at provincial senior management governance impacts significantly on, for example, the effectiveness of human resource or advanced technology investment at hospital level. Senior management responsibility is to ensure equity among hospital governance boards which have distinct policies between governance and all levels hospital management. Other advantages of dynamic policy actor participation in design driven policies are Input-Based Financing (IBF), clinical auditing and Health Management Information System (HMIS) integrity (Atkinson, 2015).

In the present study, the importance of quality data and data monitoring at tertiary hospitals resulted in improved reporting, better-quality HMIS integrity and influenced decision-making for resource allocation. Conducting clinical audits validated substantial improvement in quality of care at the central hospital and two tertiary hospitals while more complex management systems needed to be established at the fourth tertiary hospital. Policymakers need to also consider the balance between elements and supply and demand when designing RBF or IBF policies (NU Health Report 2, March 2015). By utilizing the system dynamics approach to policy formulation and evaluation, different results for different environments can be ascertained. This approach offers leverage for policy process transformation to shift attention to policy changes intended to improve systemic performance and to recover equilibrium (Atun, 2012).

5.6.2.4 Emergence and Leverage for Policy Process Transformation

Emergence of policy transformation through the formation of health networks, public private partnerships, relationships with governments have been influencing national priorities (van Ginneken et al., 2010).
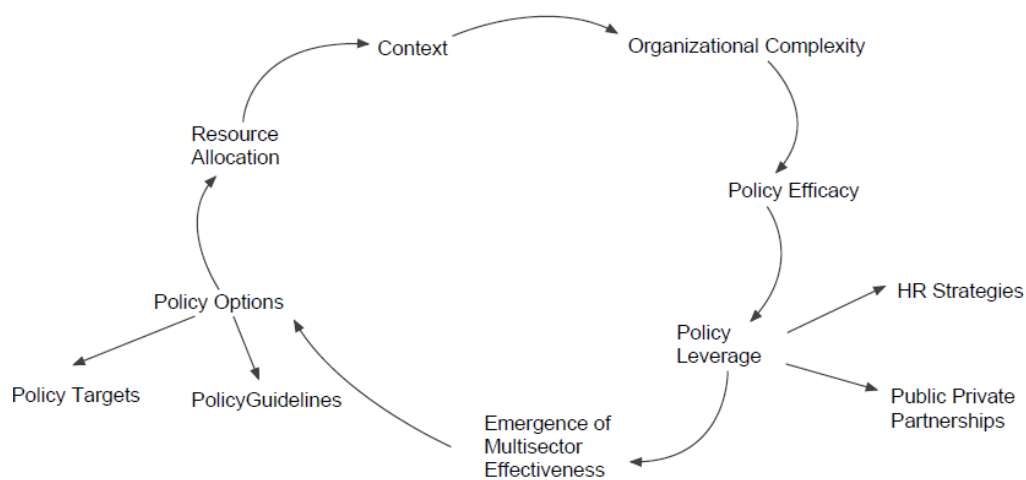
Figure 36: Emergence and Leverage for Policy Process Transformation

Policy formulation and evaluation using the system dynamics approach as illustrated in Figure 36, also provides an opportunity to interpret organisational complexity and test the policy efficacy with the intention of studying the potential impacts of HR strategies, for example to capital investment to reduce the burden of disease (Reynolds, 2010).

Leverage for policy process transformation using the system dynamics approach is an essential tool for several policy evaluation studies. Understanding the context, how the elements of the health ecosystem interact through feedback loops, the effects that delays can cause on unanticipated systemic behaviour and the non-linear dynamics influences policy options and resource allocations (Sumari et al., 2014).

Evaluation of leadership and governance policies conducted by the SA Office of Health Standards Compliance (OHSC) noted that these policies need to be modified based on the dynamic context in the hospitals. Recommendations for policy changes included leadership are required to standardize the operation in all hospitals engender a culture of teamwork spirit and also create a professional conducive environment (OHSC, 2017). Environmental trends and the ability to engage management and timeously respond to information determines if systemic performance is effective or if policy needs to change in response to restore balance in the health ecosystem (Williams &Hummelbrunner, 2011).

Currently, the burden of low numbers of specialists employed in both public as well as private health sector in SA requires policy targets to be developed towards correcting imbalances between public and private sector specialist allocations, or their distribution to rural and urban hospitals, and intra-provincially (HRH Strategy, 2011).The system dynamics effect of the shortage of specialists as well as general practitioners (GPs) on the proposed SA National Health Insurance (NHI) policy will demand that more doctors are trained and employed in SA. Policy guidelines on clearly defined roles and dynamic relationships of GPs and specialists still need to be developed.

Systemic elements which are essential to be considered in the supply of doctors in SA to meet the demand are the impact of limited training capacity, high specialist attrition due to emigration and restrictions on employing foreign nationals, causing major organisational constraint. Policymakers' understanding of the pull factors causing specialist emigration, for example, better career prospects, greater salary packages, diverse speciality training of a higher quality and better opportunities for professional advancement, influence policy reforms.

Systemic disequilibrium is intensified by budget restrictions which control the quantity of doctors who are employed in the public sector; these allocations are below a level of specialist supply to effectively meet patient load demand. Policy reforms to redress the primary drivers causing emigration of doctors for example include HR practice policies to improve working and training conditions in the public health sector with reinforcing systemic relational feedback to appeal to motivate and retain doctors. With the global shortage of doctors, a change in policy actors' paradigm to policy processes requires balancing systemic international and local relationships to be strengthened by legislating policy directives. Policy actors including the HPCSA need to be actively involved in policy reforms which address poor administrative processes for SA doctors who qualified overseas and are returning to SA is to register with the HPCSA.

Co-designed policy reform is a cost-effective approach as collective knowledge, experiences and resources to recruiting doctors and addressing shortages to ensure demands are met in the short term. In the long-term, co-designed policies strengthen stakeholder relations which provide systemic interactions that influence dynamic behaviour and service delivery. Partnerships between countries for example University of Cape Town's (UCT) African Paediatric Fellowship Programme (APFP), are worthy examples of effectively utilizing external foreign doctors and other HR resources without the causative brain drain of other developing counties. In these systemic partnership networks of interconnections among capable African healthcare professionals collaborate and advance specialist ability, as well as advocate for promoting child health through clinical service provision, training, education and research. Through these healthcare networks, registrars acquire vital expertise and the level of education gained contributes to skilled doctors returning to their countries while relieving the shortage of doctors in SA (HRH Strategy, 2011).

5.7 CONCLUSION

Health for All Policies provides high leverage for change in policy design, development and delivery (Puska, 2010). From this Finnish research study, I observed that the system dynamics approach in health decisions provides an opportunity to design policies and reorganise and structure complex adaptive systems to optimize systemic relational interconnectedness and evaluate multi-sector effectiveness (Smith, 2010). These opportunities for intersectoral collaboration involved actors representing policymakers, research academics, health care decision-makers, patient advocates, the food industry and the media, which resulted in interventions to alter national diets to reduce the high mortality related to cardiovascular diseases. Contextual factors influencing the policy space and shifts from a contracting to an expanding policy space was researched in Kenya. In that study, Crichton (2008) noted how the political, bureaucratic, national and international context changed over time, from policy elites domineering policy decisions and resources to encouraging intra- and inter-sectoral

competition for resources which ensured significant impact to open the policy space within the new Kenyan government for the family planning services. Another policy imperative is policy advocacy; an evidence-based policymaking study in maternal health. Gilson (2012) noted that tensions between historically predetermined vertical and horizontal approaches to health programmes expansion exist. This tension is due to international competition for funds and donors acknowledging academics, researchers and professional's initiatives toward rooting for vertical programs. This study showed that research practices can contribute effective evidence-based policymaking for strengthening health systems through policy advocacy among policy actors supporting interconnecting programs.
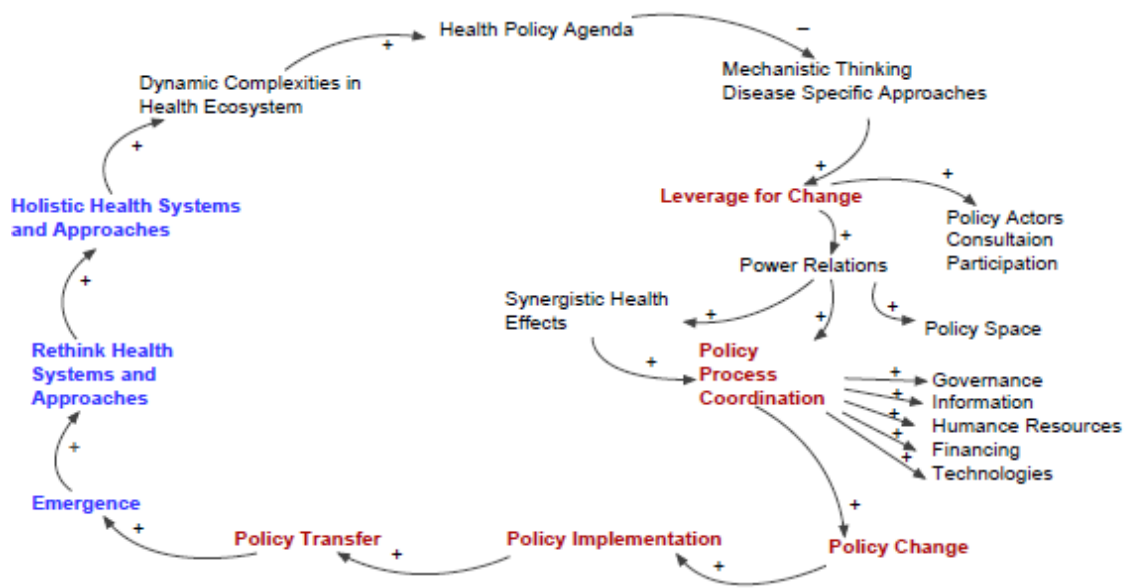
Figure 37: Leverage and Emergence of Policy Design, Development and Delivery

The international health policy agenda setting is evolving from mechanistic thinking and prominence on disease-specific approaches to a motivation on strengthening holistic health systems. Leverage for policy change in the findings of my research, as depicted in Figure 37, can occur by improving policy process coordination, governance, engaging policy actors and by implementing and transferring policies. Furthermore, this study observed that the system dynamics approach enhances transforming health policy design, development and delivery thereby causing synergistic health effects to emerge.

The co-designed CLD in Figure 37 increased my understanding of the health ecosystem dynamic complexities, the power relations influencing policy actors, the policy space, the intangible effects of policy change and policy implementation. These variables and feedback in the CLD in this figure provide opportunity for policymakers to rethink how health systems can be strengthened through active participation in design-driven policies and decision-making. These research findings highlight that by coordinating policy processes through integrating governance, information, human resources,

financing and technologies result in balancing systemic relationships, policy agenda setting and policy transfer. This study demonstrates that policy system dynamics feedback leads to emergence and leverage for policy growth causing effective investment and capacity expansion through redesigned health policies, for example, developing human resources. Another of these research findings that enabled the transformation of policy reforms is the power to transcend paradigms, as in the positive feedback shown in Figure 37, which can result in rethinking health systems approaches and strengthening health systems efficiencies through policy design, development and delivery.

This study also identified the systemic changes in policy and practice in the health ecosystem to facilitate policy and decision-makers' responses to its health and health system challenges. These SD principles will be applied to examine initiatives and strategies that improves workforce planning in KZN DOH, which could lead to enhanced health through advancements in patient health access to quality services, coverage to vulnerable people cost efficiency and satisfied patients and families.

In the next chapter, a systems dynamics approach and application of systemic thinking techniques to workforce planning for medical specialists in KZN DOH will be examined in a context in which this approach has not been used previously.

CHAPTER 6

APPLYING A SYSTEM DYNAMICS APPROACH TO WORKFORCE PLANNING FOR MEDICAL SPECIALISTS IN KZN DOH

6.1 INTRODUCTION

In this chapter, HR policy analysis and workforce planning will be examined. According to Sterman (2000), complex subsystems are in constant state of transformation which is known as dynamic complexity. Numerous feedback interactions, among the various actors and variables evolve and change over time, causing dynamic complexity in health system planning.

To implement health policy reforms and use opportunities to improve quality health service delivery, SAHR (2011) validated that health professional leaders are expected to adapt to change and new business models. This SAHR (2011) report has also emphasized that leaders have undervalued the tension on front-line health specialists, arising from the causative feedback effect within the recruitment system. Consequently, to examine the causative feedback effect within the recruitment system and HR processes, an SD approach is applied to workforce planning in KZN DOH for medical specialists, in this chapter.

This study draws on Taylor's (2005, p.3) description of effective workforce planning, as "ensuring the right people, with the right skills, in the right places, at the right time" are employed.

6.2 WORKFORCE PLANNING FOR MEDICAL SPECIALISTS IN KZN DOH TERTIARY HOSPITALS

To accomplish ethical principles of care, it is imperative for hospital management to sustain the correct balance of medical specialists employed. Tertiary hospitals are specialized complex human service systems which depend on multidisciplinary teams of extremely skilled specialist doctors, paramedics and nurses to provide patient care. In order to maintain equilibrium in the health ecosystem, a balance of these specialists needs to be retained toward ensuring continuity in patient care. To examine how this balance of specialist doctors can change over time, a stock flow diagram was adapted from Morecroft (2015).
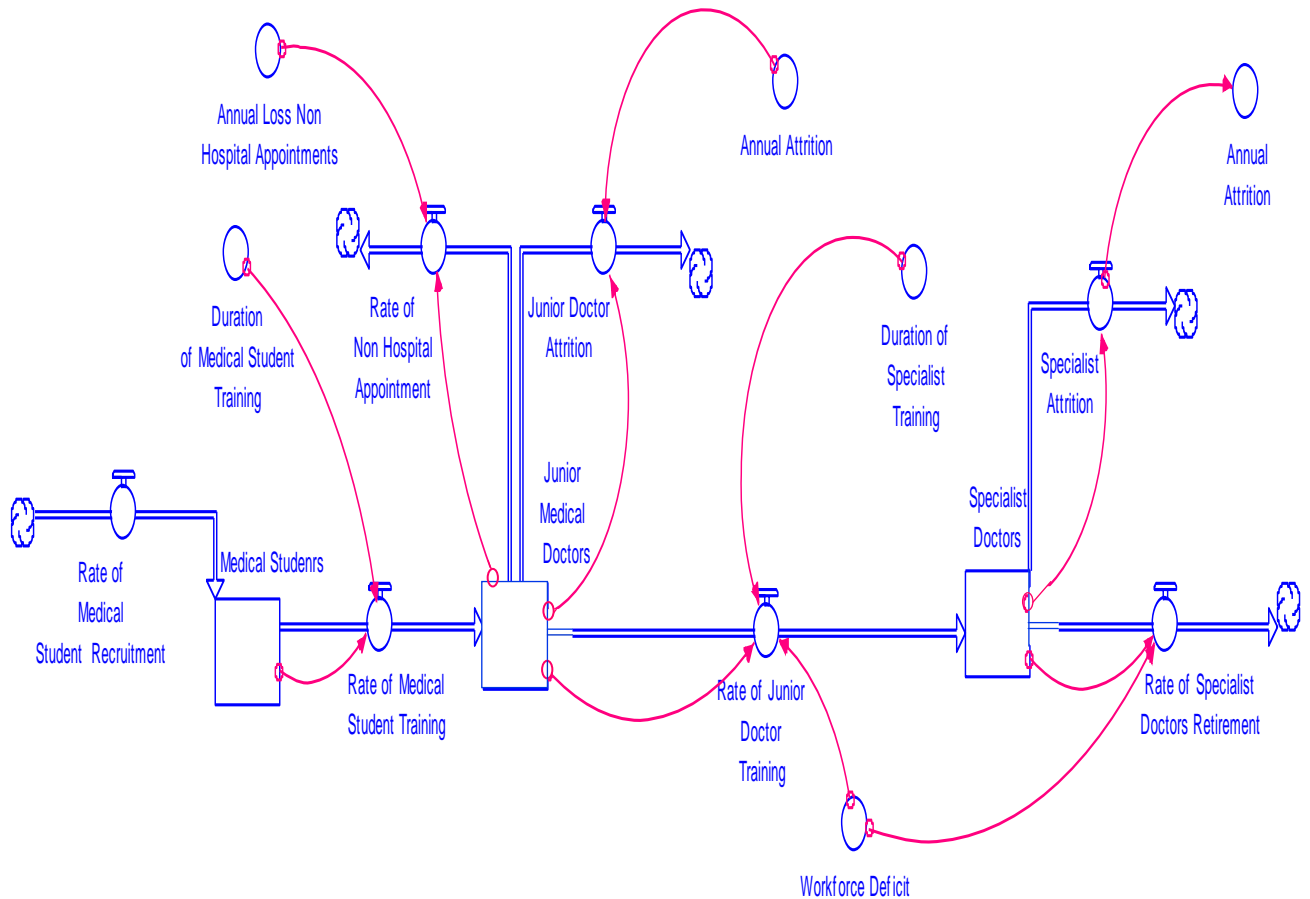
Figure 38: Stock and Flow Diagram of Medical Specialists Workforce Planning (Adapted from Morecroft, 2015)

The medical workforce planning stock and flow diagram in Figure 38 represents variables of various categories of doctors, namely, medical students, junior doctors and specialist doctors employed in the KZN DOH. This stock flow diagram illustrates the process of medical students who are recruited into medical schools where the five years are spent in training to become junior doctors. Then, if the junior doctor chooses, another four years are spent to undergo further specialist training (Matsoso, 2011). Once qualified, specialists can be appointed in either the public or private health sector or may choose to emigrate to practice their skills overseas.

To ensure that equilibrium in the supply and demand of specialists is maintained, the rate of medical student recruitment needs to equal to the rate at which doctors of all categories are leaving hospitals (Morecroft, 2015). Stocks and flows are the foundation of any system as it conforms to the laws of conservation and accumulation. When the inflow rate, for example, of medical students is higher than the outflow rate of the qualifying junior doctor, the stock progressively increases. If the outflow rate is higher, for example, regarding attrition of specialists, than the inflow, the stock steadily decreases. The delayed response of the input and output flow and changes in flow cause disequilibrium in the health ecosystem (Meadows, 1997).

The policy directive received from KZN Office of the Premier, Provincial Treasury and HRM in KZN DOH on cost containment in April 2016 impacted on the recruitment and employment processes of specialist doctors resulting in reduced number of medical specialists in the tertiary hospitals (KZN HRM Cir. 62.2016). Another cost containment strategy in 2015/16 which affected the number of medical specialists qualifying was the withdrawal of the KZN DOH equitable share funding source from the registrar training programme. The impact of this strategy was a reduction in the supply of qualified medical specialists (HPTDG, AR, 2015/16).

To understand the impact of these HR and finance policy directives, the shortage of specialists and the effect on the clinical and hospital performance in the KZN tertiary hospitals was studied using the system dynamic approach.
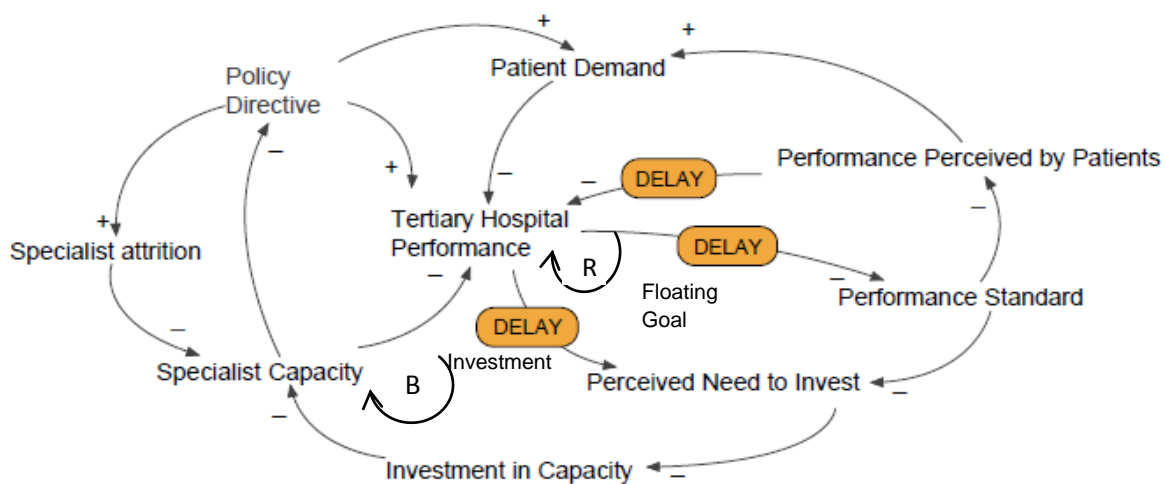
Figure 39: Loop Diagram Policies, Tertiary Hospital Performance and Investment in Capacity (Focus Group)

The dynamic hypothesis in my study, which was based on the Morecroft Growth and Underinvestment Model as described in Chapter Three, Figure 9, noted that clinical service performance and patient satisfaction depend on the stability between patient demand and specialist capacity. Morecroft (2015) defined the Underinvestment Model as consisting of *a limiting process* that is influenced, for example, by the *performance of services* in the tertiary hospitals. This model also illustrates how reinforcing growth feedback interacts between patient demands and growing specialist performance. Systemic balance between demand and capacity needs to occur for service performance to be effective and patient express satisfaction with service delivery. From FGD it was observed, as shown in Figure 39, that when the KZN DOH organisation's capacity to provide services decreased in relation to the patient demand, then performance at the tertiary hospitals deteriorated.

Over a period of time, hospital performance perceived by patients dropped with increased patient complaints and litigation for clinical errors soaring (KZN DOH AR, 2015/ 2016). The expenditure on medical litigation, according to KZN DOH Annual Financial Statements, was R251 278 million in 2016/17 (KZN DOH Annual Financial Statement 2016/17).

Tertiary hospital performance is perceived as high quality, responsive availability, consistent reliability or value for money of services rendered. Patient perceptions of tertiary hospital performance are determined by the balance between the health needs demand and the hospital's capacity to provide the service. When there are delays in service provision, as in the case of shortage of specialists, the hospitals' capacity to deliver the service decreases in relation to the demand which result in performance declines. This decline in hospital performance is perceived by patients as poor-quality services and the feedback effect results in the decreased demand. When hospital performance is sub-standard, this indicates the need to invest. In Figure 39, the balancing loop for capital investment links performance, perceived need to invest, investment in capacity and capacity. This balancing loop supports growth by determining adequate specialist capacity to retain acceptable tertiary hospital performance. When the performance standard is stable, then capacity is adjusted to goal-seeking feedback. In the dynamic complexity of tertiary hospital performance as indicated in this figure, the reinforcing loop, also called floating goal, allows the goal to adapt. The reinforcing loop stabilizes capital investment, aligning performance to the performance standard, perceived need to invest and investment in capacity. Increased specialist capacity and tertiary hospital performance occur when performance recovers after a delay and the performance standard improves (Morecroft, 2015).

When policies are modified, the systemic effect is that the proportion of specialists required at any point in time in the service chain would take hospitals at least three to five years to re-establish an appropriate balance of specialists. This systemic re-balancing is one significant consequence of the KZN HPTDG decreased budget allocation directive, as reducing funding will require hospitals to employ a larger proportion of junior doctors in order to achieve the same medical specialist allocation to meet patient demands as in the past (Morecroft, 2015). Another consequence of this change in budget allocation directive was the flow rates of doctors as described in Figure 38.

The flow rate of doctors is inter-related with the structure of medical staff posts, especially for registrars and specialists, which has not been finalized in KZN DOH. Also, the NDOH policy directive affects dynamic complexity of the health ecosystem; for example, the junior medical doctors as either interns or community service officers, post allocations, are coordinated by the NDOH without considering provincial needs. This process of allocation for junior medical doctors influences the experience sequence all the way to specialist doctors. The systemic effect is a high attrition rate

among provinces, as the balancing effect of supply and demand of specialists are not measured or evaluated.

From this permutation of exogenous and endogenous demand disparity, it can be deduced that healthcare delivery in SA and specifically in KZN, is in crisis. As health delivery systems evolve, these ecosystems convert into interconnected systems. These complex health services demand variations cause more interdependencies among these ecosystems resulting in current problems escalating. Thus, the *ability to adapting rapidly and responding to the consistently-changing* patient demands and flow through the healthcare system is fundamental to the complete success of healthcare delivery (Rust, 2013).

6.3 REGULATING NEGATIVE SYSTEMIC FEEDBACK IN THE KZN HEALTH ECOSYSTEM

The establishment of human resources in the health ecosystem is a complex logistical process. Tensions arise in the health ecosystem based on essential KZN DOH long-term planning in an environment of uncertainty. At NDOH level, the interconnections between specialists training, formal post location and tangible responsibilities also influence HR and finance policy.
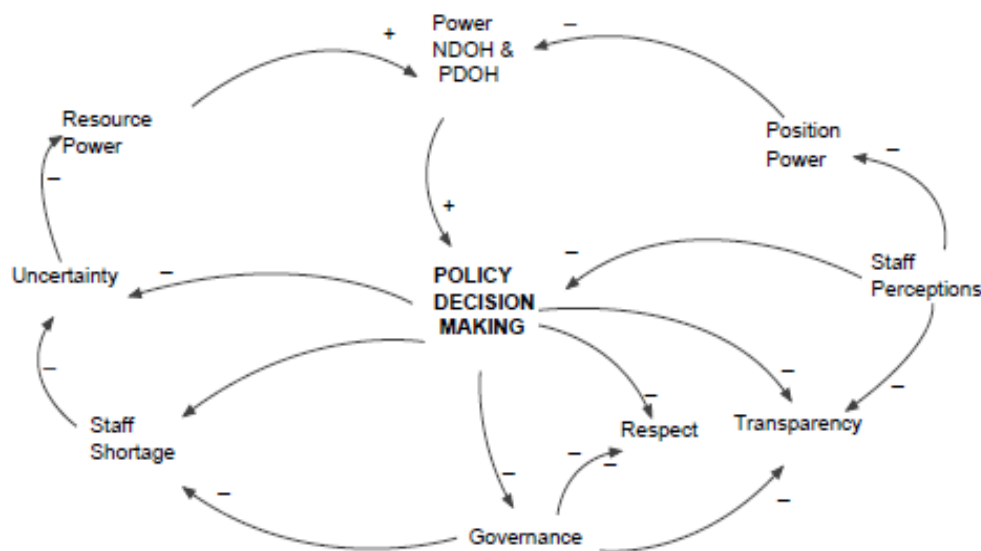
Figure 40: Policy Decision Making and Power Relations (Focus Group)

Tensions also occur over jurisdiction between national and provincial authorities as presented in Figure 40. In this dynamic complexity of power relations, it was observed that there is inability to practise governance principles and the lack of transparency in decision-making, resulted in lack of

trust and respect among managers between NDOH and PDOH. Other tensions which arise include, for instance, the position power of NDOH staff, and an authoritarian attitude of PDOH budget managers is perceived as a coercive force. These power imbalances cause uncertainty among health care managers, the risk of underspending budgets and negative feedback in the health ecosystem.

System dynamics approach and critical systems thinking (CST) were used to analyse perceived systemic inadequacies and power relations. The aim of the SD approach in this study is to understand the holistic context, negative feedback of interrelationships, diverse perspectives, and power relations. By identifying CLD and the events that produce imbalances, insights are gained from these systemic imbalances which initiate CST. To restore systemic equilibrium a change in the balance of power, leadership and management is possible when there is understanding of '*who are the stakeholders who have the power to make the changes*'. When senior management identifies relevant stakeholders and focuses on inclusive, interactive engagement, the management teams become motivated by their direct involvement and take ownership of and develop accountable decision-making, for example in the development strategic and business plans (Reynolds, 2010).

Presently policies directives from NDOH are not available and *ad hoc* changes are made without PDOH needs, data or risk analysis being undertaken. An example of these *ad hoc* changes without policy directives is the development of the compensation of employees' allocations for medical specialists in the draft NTSG business plan resulting in audit findings for non-alignment to policy. Current NTSG policy on conditional grant framework and Division of Revenue Act (DORA) is used for specialist compensation of employees' allocation, but the proposed change to this policy includes adding medical interns or junior doctors. There is no written policy directive, nor has the impact on the health ecosystem of this proposed policy been considered.

Changes to budget allocations are made without considering tertiary hospital context, for example, the revitalization project at KEH. The current context is that there are non-functional operating theatres, wards are inhabitable and due to renovations to roof patients are relocated to other regional hospitals. The negative feedback in this example is underspending on the conditional grant budget allocation. Another example of negative feedback in the KZN health ecosystem is the decreased workload at IALCH due to insufficient specialists, high resignations and inability to recruit to fulfil the affirmative action policy. It was observed that the causative variable was the Chief Executive Officer (CEO) and HR manager's mental models of inflexibility in policy implementation resulted in loss of accreditation for training of registrars and specialists in four clinical services (Focus Group).

As a contingency to ensure IALCH services are delivered and patient care is sustained, the Greys Hospital which has a stable workforce was selected to offer these services. The result is an increased

workload at Greys Hospital, and staff working overtime to ensure patient waiting times are decreased. The workforce stability at Greys Hospital influenced the medical training policy directive and accreditation from HPCSA for training specialists has been received. Other policy implications which have negative feedback are the inappropriate designation of the level of care at Ngwelezane Hospital. The socio-economic-cultural and political context of the Ngwelezane Hospital is that there is no regional or secondary level hospital in the Uthungulu district. Yet NDOH has declared that Ngwelezane Hospital needs to provide a tertiary or highly specialized level of service. The KZN DOH proposal is that Ngwelezane Hospital provides a full regional hospital service and selected tertiary services. This proposal was based on provincial needs assessment and still awaits the Management Committee (MANCO) and an NDOH policy decision for these changes to be implemented. Consequentially tension among NDOH and PDOH managers is caused by delays in decision-making which results in counter-intuitive behaviour in the health ecosystem.

Other systemic tension exists when political changes are pronounced without cost or policy implications being considered: for example, the National Minister pronounced that KEH be commissioned as a Central Hospital. NDOH has not considered the consequences of these pronouncements; with no increase to the KZN budget allocation, there has been no costing of HR, operational management requirements or referral network in eThekwini and provincially (KZN NTSG, 2017/18).

6.4 TRANSFORMATIVE POLICIES TO REGULATE HEALTH CARE PROVISION

Transforming the health system in SA is fundamentally influenced by ethical governance values and principles enshrined in the Constitution, Bill of Rights, SA Health Act, Batho Pele Policy, Patients Charter and other democratically developed legal mandates and policy directives. A core function of the SA health system is to safeguard the population wholistic health and well-being as well as to balance health care service provision with responding to needs of individual patient suffering. Another legislative mandate is for the NDOH to ensure patient autonomy, which is the right to self-determination requires to be balanced with providing effective, efficient, sustainable, health services (SA Health Act, 2003).

The White Paper on Transforming Public Service Delivery constitutes the Batho Pele principles which make provision for participation and negotiation between communities and professionals to ensure trust and accountability among these actors within and outside the health system (Batho Pele, 1997). The values in these democratically developed policy directives in which social justice, equity and unity among actors, render health services as an ecosystem is to facilitate transformation in the

socio-economic-cultural and political context aimed at a better life for all citizens. Application of these ethical principles and values results in counter-intuitive behaviour with consequent tensions in the health ecosystem. A vital task of health system governance is to negotiate a balance of values and principles among actors exist in the health ecosystem.

One of the principle values of Batho Pele, which translates as "People First", is provision of quality health care that connects various elements in the health system to achieve a balance between those systemic components. To provide optimal quality of care effectiveness, related to achieving clinical outcomes, should be balanced with efficiency or productivity in order to contain cost (Unger, 2008). This process of balancing effectiveness with efficiency in order to contain cost is referred to as rationalisation of health services. Tension also exists between the reactive and proactive approach in health care. Balance needs to be negotiated between communities, professionals and health managers. In a reactive health system, the patient is responsible to initiate interaction with the health system, whereas in a proactive health system, professionals and health managers are accountable, concerned and pre-emptively improves people's health. Power imbalance between patients and managers also cause tension in the health ecosystem. For example, this occurs in the rationalization of services in which services are reformed without consulting patients reflects a reactive approach to health service delivery. To restore balance in the health ecosystem consultation and negotiation between communities and professionals requires consistent feedback. To regulate this negative feedback tension in the health ecosystem there needs to be policy adaptation to the changes in the labour market for health professionals. Flexible HR processes need to be established to accommodate new skills, scientific developments, public health demands, and innovative organization models. Likewise, job profile specifications of health specialists also need to be reformed to keep abreast of crucial dynamic pace of change.

Furthermore, the SD approach proposes to effectively manage complexity and changing dynamics in this quality-performance problem context by balancing effectiveness with efficiency and containing costs. It is essential that components within the health system and clinical services it delivers are responsive to the local community health care demand and needs and is established on codesigned priorities. Policies, HR and finance practices need to balance sustainable financing mechanisms and actors have a duty to respect and implement these codesigned policies. Further tension exists between achieving short-term and unfunded long-term goals and between focused concentrated and comprehensive all-inclusive approaches; for example, in the short-term focussed method, the intention is to achieve rapid results (Levine et al., 2009; Shah, 2009).

6.5 LESSONS FROM BEST PRACTICE EXPERIENCES OF SYSTEM DYNAMICS APPROACH TO WORKFORCE PLANNING

The System dynamics approach in health services have been used in several countries outside of SA. Health system strengthening, policy analysis and impacts of health sector reform in developing countries provided significant insights into the system dynamics approach for this study. Lessons derived from these system dynamics studies offered tools which supported improved understanding of the challenging management complexities in KZN DOH.
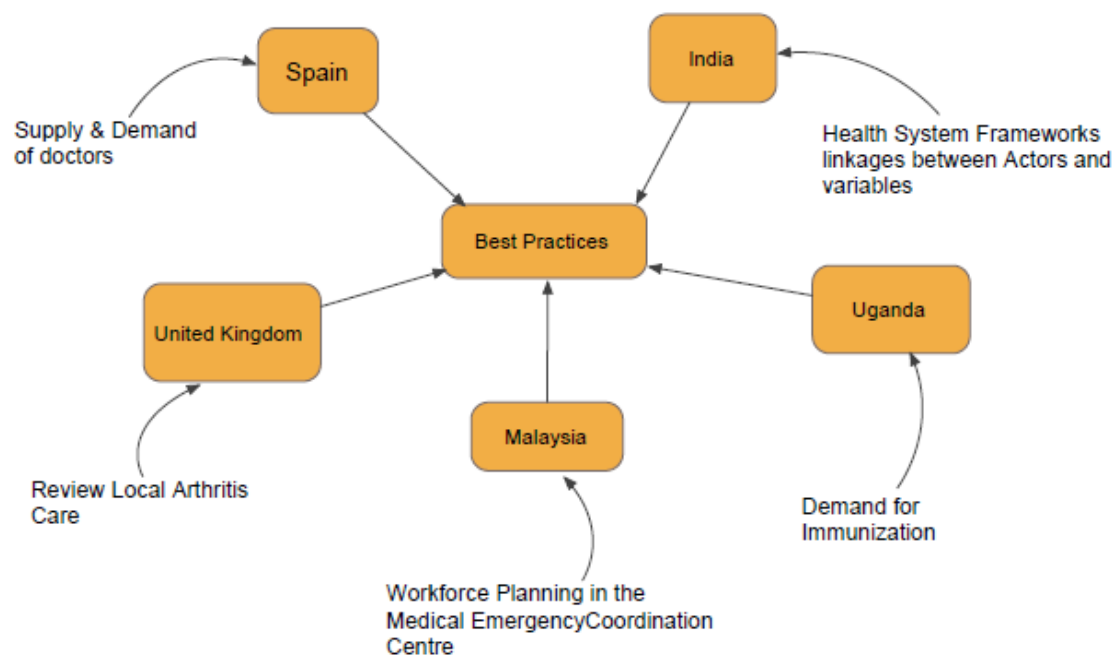
Figure 41: Best Practices Experiences

6.5.1 Spanish Study (Barber 2010)

A system dynamics study in Spain examined the supply and demand of physicians. Developing the SD model involved researchers reviewing imbalance between the professions, namely, the nurses to doctors' low ratio, an imbalance among specialists, and the supply of physicians. Variables affecting the supply of physicians were the shortage of physicians, mandatory improvement in the working conditions which included flexible work schedules, part-time work or vacation time, and public sector attrition to the private sector or abroad. Variables affecting the demand of physicians were the variety of specialties, changes in disease profiles, and an aging population. The resultant effect of this demand for physicians was that physicians needed to specialize as in one of the following areas: geriatricians, urologists, and family practitioners. To maintain equity of services, the demand for a minimum number of physicians in Spain was also required in the rural areas. Specialists needed to learn new procedures and had to operate advanced medical technology to treat new illnesses. Change

in policy and the devolution of health service in Spain required specialists to staff new hospitals so that patient access was improved. Other variables which affected the shortage and subspecialty choice of physicians in Spain were the disparity in salaries in the public sector, inflexible labour regulations and global migration.

This Spanish study recognized that their health system disequilibrium can stabilise in the short term by ensuring supply of emigrant specialists. Another variable effecting dynamic equilibrium in the medium term is mobility among specialities by redesigning the training schedules and through admitting more students to medical school in the long term. These researchers concluded that the supply and demand of specialists required a dynamic adjustment of the right skills-mix, the right decisions which needed to be made at the right time; regulating medical internationalization and to enable the right working conditions and specialist compensation (Barber, 2010).

6.5.2 Indian Study (Bhojani et al., 2011)

The epidemiologic change with chronic diseases profiles was the primary reason for death and distress in a poor urban district in India, which was the context for analyzing the delivery of health care in this district. A local health system dynamics approach was utilized to understand variables in the system and its actors, the systemic relations between these actors and to review the existing frameworks and different elements of this health system. Variables considered were the effects of urbanization and internal migration, which resulted in societal, traditional and financial instability and deprived access to healthcare services. Further fluctuations in this district system such as urban infrastructural developments and a rapidly growing population, caused displacement of health facilities to other areas. This effect of urbanisation led to more turbulence in the health ecosystem and the government found it difficult to provide health services. These inter-relations and shared systemic connections between the diverse components of the health system were analysed in this study. The diverse elements of the health system included mapping various levels of the system, such as the operational services and the central level, the significant global actors and their effect on this health system, communications with patients, health service provider, the association among local networks and various health services.

Results indicated disequilibrium in the communications subsystem across national, meso- and micro-levels and the lack of dialogue of values and shared interactions amongst various components in the health system. This lack of dialogue, standards and shared vision influenced the behaviour and choices of the actors and the processes used in this health system. The researchers noted that by using the health system dynamics framework the role and significance of values, the interventions at one stratum in the health system and the influence on other elements and levels and the effect of attaining the organisational goals and aims can be measured. Other elements assessed were the relationships

among management, staff, service providers and people accessing the health system, which is a complex adaptive system that required being cohesively structured and strengthened. The researchers concluded that by increasing the in-flow of resources provided, the ability to change these resources into positive modifications in the health system can be achieved. Another finding was that by paying attention to adjusting the power balance among actors, there was alignment among all actors and the organizational values and an improved participation in inclusive decision-making. Thus, this study further concluded that health system strengthening requires comprehensive processes which are sustained within a time range and designing subsystems can institutionalize these processes, so that there is learning and adaptation to the dynamically evolving context (Bhojani et al., 2011).

6.5.3 Ugandan Study (Rwashana et al., 2012)

The SD study conducted in Uganda critically examined imbalances related with the demand for immunization. A case study with qualitative system dynamics feedback method was used to examine the relationships among political, social, economic and technological powers. To understand the immunization process and organizational environment, a field study in which the dynamic complexities and the effectiveness of immunization coverage was also studied. Causal loop diagrams (CLD) were developed to demonstrate the dynamic effects related to need and delivery of immunization services. The purpose of this study was to facilitate decision-making processes and healthcare policy interventions. Neonatal cases investigated from clinics, public and private facilities supported collection of local data about the prevailing immunization system, customer needs and systemic conditions which was used to develop this generic model. Other elements studied were external to the system, for example, immigration or emergence of epidemics changed the demand for immunization. The effects of systemic feedback loops, information flows, systemic delays, and how policy changes resulted in intended and unintended consequences characteristic of the immunization system delivery and application of immunization services were also examined. Stakeholders commented on the CLD and data obtained was used to populate the model. Testing of different policies and model validation with the proposal of intervention plans to improve immunization coverage was conducted.

A comprehensive and integrated view of the system was offered to stakeholders through their improved understanding of the CLD, the systemic complexities and polices. The researchers concluded that by using the SD approach, data obtained from the analysis of social, procedural, policy and traditional problems in the immunization system enabled communication and diverse stakeholder perspectives. Other insights were that the stakeholders agreed on different policies and priorities, the use of CLD simplified the synthesis of the several theoretical concepts, and decision-makers were

able to focus on the causal relations of systemic insufficiencies and not only the symptomatic outcomes (Rwashana et al., 2012).

6.5.4 Malaysian Study (Sumari et al., 2013).

According to Forrester (2014), issues of disequilibrium in an organization which is the source of the instability in employment in the organizations, require management improvements of the internal structure. In a Malaysian study, Sumari et al. (2013) noted that policy implementation affecting workforce planning in health care requires identifying the appropriate variables which are used to develop a qualitative system dynamics model in order to recognize the interrelation among variables. Data obtained from interviewing stakeholders informed feedback of the real system. The objective of using system dynamics method was to analyze qualitative data to determine variables which had been extracted from the interview transcripts. This method provided a better comprehension of the culture of human and social behavior of the real- life system through the interaction that occurred among the variables. Qualitative data obtained from this analysis was also from observation and document analysis. The case study was conducted in the medical emergency coordination centre (MECC) in a public hospital around Johor Bahru. The objective of the case study was to achieve insight into the complex circumstances that occurs in the health care organization (Sumari et al., 2013).

Results of this study noted that other elements or variables like the use of technology and facilities, skilled staff and ongoing inservice training are interconnected to workforce in the emergency department unit. Other results were that management at the highest level need to make policy guidelines accessible for staff to attend to patients, inspire teamwork spirit and ensure non-clinical staff who participates in the MECC are included as a variable which affects the health care system. A further variable is the patients' demands, which reveal the number of cases received by the staff in the MECC. These variables were used to study the interactions among each other and how these interactions which occur in this system impacts on the use of workforce in this MECC unit (Sumari et al., 2013).

6.5.5 United Kingdom Study (Health Services Research Network, 2014)

System dynamics proposes a reliable alternative to investigational trial methodologies to service provision and system design. The SD approach offers a risk-free environment in which concepts, notions, theories and models are analysed without the actual time, budget and risk involved in trying it reality. According to the Health Services Research Network (2014), these methods have the potential to objectively comprehend complex healthcare eco-system interactions, and carefully explore 'what if' scenarios to measure risk and forecast future performance

In the Universities UK Health Services Research Network (2014, p.4), Sir Muir Gray, Chief Knowledge Officer to the NHS, suggested: "These problems cannot be solved by more money, or by reorganising the bureaucracy of healthcare. A new paradigm is needed, a revolution not another reorganisation".

Using the system dynamics approach is a cooperative interactive method that can produce unanticipated awareness which assists problem identification requiring resolution, identifying realistic variables needs to change and why. For example, the unanticipated insights which were gained in a study to review of local arthritis care supervisors documented pain control as a primary issue. Yet, patients using these services identified fatigue as the crucial issue, which impacted their capacity to live a normal life. This insight was used to reset the outcome parameters for the service redesign. To conceptualize an accurate representation of the real service situation collective discussion, facilitating various philosophies and understanding can be shared from a diversity of stakeholders to build and analyse the system (Health Services Research Network, 2014, p. 5).

Daniel Chalk, a research fellow from NIHR CLAHRC for South West Peninsula noted:
> "When managers and clinicians viewed the model and saw what would happen when the changes were implemented, it stopped everyone in their tracks".

This SD study used in the UK noted that collaboration with stakeholders, relationships among various components and the insights gained from engaging stakeholders resulted in an accurate conceptualization of the reality in the health services. These insights also shaped the scoping and redesign of the services (Health Services Research Network, 2014).

6.6 LEVERAGE POINTS WHERE SIMPLE CHANGES USING THE SYSTEM DYNAMICS APPROACH CAN HAVE EXTRAORDINARY OPERATIONAL AND STRATEGIC OUTCOMES

6.6.1 Engaging Stakeholders in using the System Dynamics Approach

Current perception of specialists and HR practitioners in KZN DOH are reflected in the counter-intuitive behaviour: for example, specialists' requests to fill vacant posts are delayed by HR practitioners who claim that HR policy does not provide scope to fill vacant posts. These rigid "Rule Book" mental models among HR practitioners add negative feedback to the shortage of specialists. Another effect of this counter-intuitive behaviour is the negative feedback shown in the CLD in

Figure 42, in which the arrows from stakeholders to participation, consultation, collaboration, commitment and acceptance are negative due to the lack of engagement.
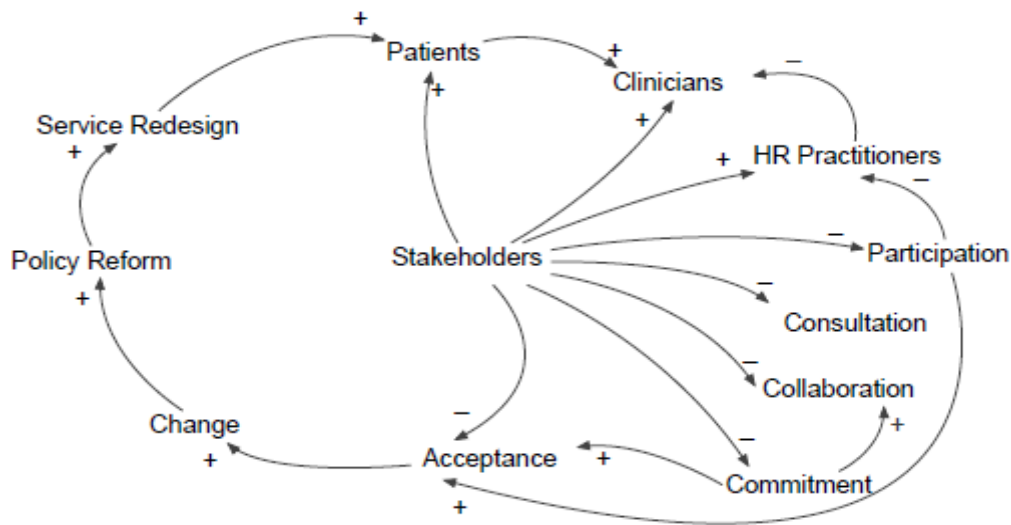
Figure 42: Engaging Stakeholders in Policy Reform and Service Redesign (Focus Group)

The FGD identified variables in the figure which recognises that system dynamics is a powerful tool for engaging DOH stakeholders, by including clinicians across the care pathway in service redesign. This participation encourages acceptance from stakeholders on the need for change, as an opportunity is created to break the silo thinking, and recognition of new ways of working and developing changed service models are generated. Active commitment enables a decidedly collaborative attitude to undertaking complex tasks and ensures all stakeholders pursue a common goal. Relevant conversations with evidence-based reporting provide input for policy reform. Involving service users in the system dynamics review processes provides a unique opportunity for clinicians and operational managers to use realistic patient experiences to map service reconfiguration. Insights into disequilibrium between clinical services and administrative bungles provide a value-added consideration of patient anticipations and their response to interacting with services.

Likewise, consultation with patient groups also provides influential evidence and leverage for acceptance of changes to services as in the relocation of resources like wards, clinics or hospitals (Health Services Research Network, 2014).

6.6.2 Medical Equipment Procurement in KZN DOH

Another leverage point used in the system dynamics approach in relation to changes to long-standing service processes, is in relation with the procurement processes in the health ecosystem. Simple analysis reports and timeous decision are extremely beneficial in assisting facility teams recognize

cost effective and rapid-to-act modifications that ensure an immense impact. In KZN DOH, for example, a simple analysis report of underspending on medical equipment required timeous a decision to change the equipment orders to those already on tender thus ensuring cost effective and timely procurement. The outcome is that clinicians have the necessary equipment to treat patients and patients care is effective with high levels of patient satisfaction (NTSG, 2017).

6.6.3 Outreach Programmes

The potential of using system thinking and system dynamics strategies as leverage can transform the quality and cost of health service delivery. For example, there is a lack of skilled clinicians in the regional hospitals, which causes an imbalance in the health ecosystem. To align the services to patient need, specialist outreach programmes have been initiated in KZN DOH towards providing clinical expertise from tertiary hospitals to rural regional hospitals where scarce skills are evident. The system dynamics strategy makes valuable resources available for service delivery, and challenges clinical teams to change the way they work. The strategy also strengthens collaboration among various actors to achieve improved clinical outcomes, reduced patient referral and waiting times which results in improved patient satisfaction (NTSG, 2017).

6.6.4 Public Private Specialist Collaboration

To improve the health system collaboration across clinical disciplines, private and public sectors and health professional organizations required that specialists extend their knowledge, proficiency or skill further than their specified clinical fields, and work in partnership with colleagues with diverse clinical capabilities. The CLD in Figure 43 demonstrates how the public private specialist collaboration strengthened health service delivery.
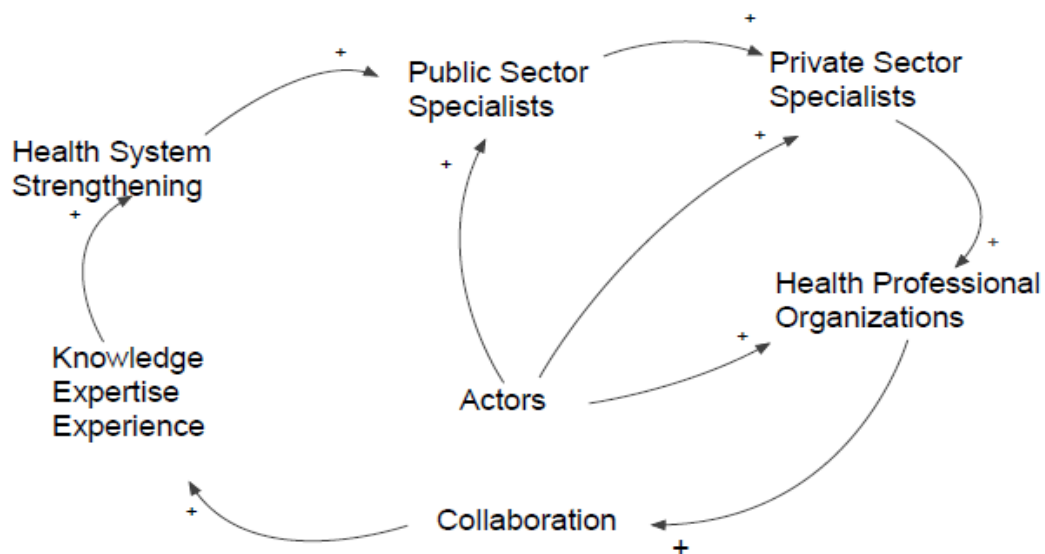
Figure 43: Public Private Specialist Collaboration (Focus Group)

Change based on system dynamics involve a recognition that the context is constantly evolving. Therefore constant, iterative learning requires actors to consistently adjust study and relate information insights to existing challenges. Health ecosystem strengthening, redesign and dynamic implementation can be based on these lessons, experiences and actors' expertise. This collaborative system dynamics approach was used as leverage to address the Oncology crisis experienced in KZN DOH. High attrition among the Oncology specialists in KZN required collaboration with the private sector specialists and health professional organizations to negotiate and source clinical expertise from the private sector specialists. The disequilibrium caused by decrease in Oncology specialist services was balanced by implementing the service level agreements between public and private specialists. The resultant systemic feedback yielded patient care demands were met (KZN DOH AR, 2016/17).

6.6.5 Operational Impact

The operational impact of this collaborative system dynamics approach included using the private sector oncologists to distribute and allocate scarce specialist oncologists between hospitals. Applying the principles of the queuing theory technique enabled planning specialist timetables, and the situational forecasting facilitated allocation capability between medical, surgical and oncology beds (KZN DOH Oncology report, 2017).

6.6.6 Strategic Impact

By creating the system dynamics approach to include uncertainties, in future clinical services' demand and variability, like patient needs and clinician performance or using network analysis, a more refined understanding of systemic interactions can be achieved (Health Services Research Network, 2014). Linking locally organized service delivery processes, specialized clinics or critical care services using networks of clinicians who can coordinate their activities provides successful patient care and efficient use of system resources. Thus, the ability to link locally organized service delivery processes into continuous chains of service provision and to rapidly adapt to ever-changing rates of internal and external demand variability can be synchronized to meet the ebb and flow of patient demand. The design of new management structures, decision heuristics, definition, estimation, and implementation of new healthcare service delivery management approaches provide effective responses to the health ecosystem dynamic complexity, managing patient's risk, proficient use of resources and high-quality healthcare (Samuel et al., 2010).

6.7 RESOURCE FLEXIBILITY AND EFFICIENCY INFLUENCED RECRUITMENT OF SPECIALISTS

Interconnected interdependent health delivery systems and collective strategy of refining both resource flexibility and efficiency influenced recruitment of specialists in Paediatrics. The clinical head of department for Paediatrics in KZN DOH provided strategic leadership to convince HR to utilize a collective strategy of refining both resource flexibility and competence by not borrowing specialist posts to the direct creation and employment of specialist Paediatricians. The result was that the financial resource which is interconnected with the HR was utilized efficiently, namely, the budget allocation for COE was fully spent and overtime costs were contained. The outcome of utilizing this cooperative strategy of resource flexibility and competence was that the Paediatricians performance improved and patient waiting times decreased. The primary success of this flexibility and efficiency which influenced recruitment of Paediatric specialists and HR redesign has endorsed clinical managers and hospital leadership to review performance standards.

The stability in patient waiting times and extremely variable patient demand proposes that this strategy should be used in employing specialists in Oncology, Accident and Emergency Trauma, Critical Care, Obstetrics and Gynaecology. These clinical services have a high burden of disease, and are high cost drivers, which require competent specialists who will impact on the morbidity and mortality rates in SA. Engaging relevant actors to implement flexibility through improved coordination of performance standards allows clinical heads of departments and hospital management to achieve higher efficiency, reduced costs and higher quality.

Consequently, healthcare services need to be designed to respond both swiftly and accurately to meet the distinctive patient needs. By designing staffing levels equivalent to the average patient demand in tertiary hospitals and the current pressures to reduce healthcare costs, both clinical head of departments and hospital managers must focus their efforts on levelling variation to reduce unnecessary clinician burnout, stress, attrition and improve patient safety and quality of care (Rust, 2013).

6.8 WORKFORCE PLANNING USING THE SD APPROACH ENABLES WORKFORCE PLANNERS TO ASSESS THE IMPACT OF WORKFORCE POLICY OPTIONS AND MINIMIZE RISK

In the current study, reflections from the FG and the experiential lessons of various scenarios of health policy analysis in KZN DOH demonstrated that policy is non-aligned to NDOH strategic priorities as in strengthening health system effectiveness by complexing of hospitals. In an attempt to rationalize

hospital services, the proposal to complex hospitals in KZN has been drafted. However, the patient: doctor ratio, the work roster stress, clinical errors and changing work patterns with the resultant systemic effect on clinical experience, workforce deficit and staff morale, remain in disequilibrium. The objective to rationalize the number of hospital beds was to improve performance efficiencies. Yet, delays to finalize this rationalization hospital services plan have been due to the lack of strategic policy. Other examples of non-aligned policy are the lack of NDOH specialists staffing norms, the management discriminatory stakeholder participation in HR Planning, staff been marginalized when advocating adherence to governance principles, and lack of implementation, monitoring or accountability of external consultant's deliverables as per these consultant's contracts.

Furthermore, inadequate preparation or organizational barriers to access the medical profession, seems to cause a shortage of health professionals. These non-aligned policy initiatives management mental models and poor planning or corporate barriers result in risks of high staff attrition and negative feedback in the health ecosystem (Focus Group, 2018). Policy change and transformed mental models can correct the number of specialists required to regenerate a stable equilibrium of specialists. This stability is an essential result of policy reform and management transformation, as it will necessitate hospitals to employ more junior doctors to achieve the equivalent medical cover as registrars are trained and employed as qualified specialists. The flow rates of doctors in the supply of specialists are determined by dynamic complexity such as the number of medical students recruited annually from secondary schools or as mature students. Also, this undergraduate recruitment of medical students is decided by the Universities Medical Schools Health Science Faculties. The in-flow of medical students into the health system is an exogenous variable, beyond the control of DOH or individual hospitals and independent of the NDOH policy imperatives. Growth in the number of specialists is attained through expansion of medical student recruitment and the number of successfully qualifying junior doctors.

In SA, it takes five years for a medical student to qualify as a junior doctor, and a further one-year Internship and one year of Community Service. The outflow of junior doctors is controlled by delays in the length of time in medical school training. The rate of junior doctors training is the ratio of medical students to the duration of training which is based on a depletion formula. The flow of qualified students collects in a pool of junior doctors. From this pool, a substantial number will select to remain as general practitioners or to specialize.

The DOH collaborates with the Universities for the number of registrars to be recruited onto the specialist training programmes. The time it takes for registrars to qualify as specialists is three to four years. This postgraduate registrar training is self-directed education while at work, with official clinical on-the-job learning in DOH facilities and seminars which are supervised by senior specialists.

The out-flow of number of qualifying specialists is affected by the attrition. Attrition of registrars is due to changes in the working environment, the registrars' morale and changes in the academic policy for completion of Masters in Medicine dissertations before applying for specialist registration. The HPCSA policy to recruit specialists from the increased number of SA junior doctors who qualified overseas is under review. The delay in ratifying this HPCSA policy further reduces the inflow of registrars onto the specialist training programme.

Another variable in the dynamic complexity of specialist recruitment are the non-SA resident doctors. There is a growing number of workforce recruitment among African Union member states to make up the deficit in specialists. As medical immigration increases, overseas doctors also take sabbatical times of clinical practice and develop in specialities in an attempt to achieving permanent residency in SA. The specific workforce deficit in KZN DOH is unavailable. To calculate the specialist staff shortage data on the difference between the target number of specialists and current total specialists comprises SA qualified junior doctors and non-SA doctors. Since there are no NDOH specialist norms to calculate the target, the target number of specialists is a guess-timate. As more hospitals become compliant with the National Quality Core Standards for Hospital Performance, the target workforce will grow.

Other demographic, education and labour market variables to consider when recruiting specialist are the time it takes to recruit, the length of the contracts, the category of hospital, for example, whether regional or tertiary and urban or rural and the compensation scales. It takes approximately six months commencing with advertising the post, the shortlisting, and interview, to successfully completing the qualification admittance exams to commence working a SA hospital. Delays in this recruitment process add to the negative systemic feedback. As the dynamic health ecosystem is in disequilibrium regulating the number of specialists in relation to the clinical demand of specific specialists consists of making realistic policy decisions at specific times about the number of registrars in the intake for training. Recruitment and retention policy for specialists should be governed by a balanced skill mix, geographical distribution, conducive working conditions and compensation schedules (Morecroft, 2015).

Regulating the admission policy of junior doctor intake onto the registrar programme in a context of disproportions between the professions, for example, a low ratio of specialized nurses to specialists or imbalance among various clinical specialists, and an inequitable rural urban allocation of specialists needs to be considered to reform HR specialist recruitment policies. The shortage of specialists also causes negative feedback in the supply of specialists. Another variable causing this deficit is the number of female registrars who are eligible for maternity leave, which necessitates delays in the total training time and reduction in the number of qualifying specialists. An additional variable which

causes negative feedback in the supply of specialists is the number of experienced senior specialists who are confronted with mandatory retirement. With the retirement of senior specialists, the experience and supervisory skill are depleted, which has a negative feedback on the number of specialists in the health ecosystem. The demand for specialists is affected by demographic trends towards an older population and change in epidemiologic profiles, which increase the demand for specialists like geriatricians, neurologists, arthropods, urologists, cardiologists, oncologists and family health practitioners (Barber, 2010).

6. 9. CONCLUSION

Health human resources planning is a high priority in many countries and in SA, the NDOH strategic goal is to strengthen human resources for health. Planning methods can be based on HR need, demand or benchmarking. The evolution of supply and demand of specialists projecting for three to five years in each of the forty-six medical specialties authorizes the adjustment of inputs aligned to NDOH policy decision, regulation, technology and demography.

By using the SD approach in this study, simulation of complex organizational behaviour over time was facilitated as was the intention of improving understanding of these complex systems, the imbalances in the medical labour market and this methodology enabled analysis of workforce supply and demand. Other learnings derived from this study is that complex feedback systems can be analysed by using CLD and stock flows in which resources be it financial, HR or material resources, demonstrate accumulation and depletion in the stocks over time and the interdependencies of these variables. Complex data-sets can also be integrated by using the SD tools and the graphical illustration of the system enables stakeholders to actively participate in the validation process. This improved stakeholder understanding of strategic issues empowers viable strategic action that will advance the system behaviour (CFWI, 2004).
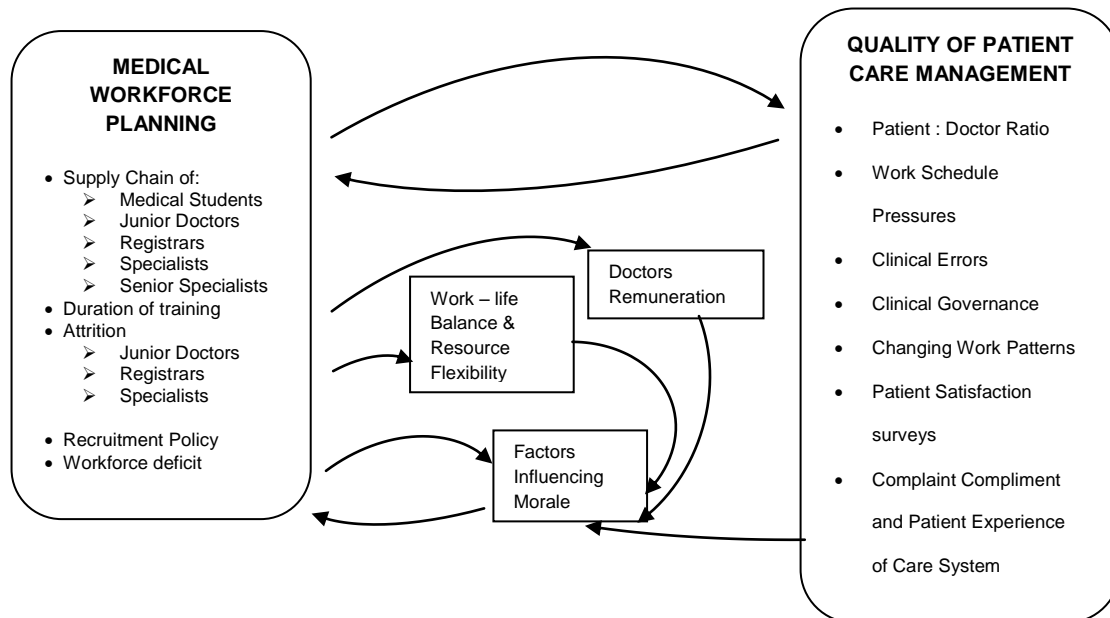
Figure 44: Medical Workforce Dynamics and Patient Care Framework
(Adapted from Morecroft, 2015)

The framework of medical workforce dynamics in Figure 44 symbolizes workplace stressors underlying doctor's morale, attrition, as well as the feedback loops connecting work–life balance, doctors' remuneration and factors influencing quality of patient care, as iterative systemic relations.

In this chapter, the development of a system dynamics-based workforce framework as illustrated in Figure 44, is inclusive of FGD reflection on current KZN DOH recruitment practices, information flows, actors' mental models, and best practices, and from my practical experience of understanding the dynamic complexity of the health ecosystem. These variables can therefore be used as leverage in the system to influence equilibrium in the supply and demand of specialists and nurture potential to retain specialists.

This analysis of the policy decision-making and power relations between KZN DOH and NDOH, as illustrated in Figure 40, provided insight to the mental models or mindset of actors, which shapes the health ecosystem's goals, power structure, rules and the organizational culture. The distribution of power among actors participating in supply and demand of specialists over the rules of the system results in leverage for change in HR policy. Other leverage variables are the need to transform HR recruitment rules of the health system in the form of incentives, penalties or limitations (Meadows, 2017). This effect of policy options in several future scenarios analysis by workforce intelligence can examine future uncertainties and minimise risk to achieve the NDOH goal of strengthening human resources for health (CFWI, 2004).

Globally, progressively more complex health systems necessitate a culture which consistently develops new leaders and inspires existing leaders. Organizational complexities and dynamic health service platforms require understanding the leadership styles, practices, relationships, decision-making processes and governance structures.

In the next chapter I explore leadership and governance and the notion of self in an attempt to improve my understanding of authentic integral leadership.

CHAPTER 7

BECOMING AUTHENTIC INTEGRAL LEADERS

7.1 INTRODUCTION

In an era of the fourth industrial revolution (Schwab, 2016), despite the rapid pace of dynamically changing technological advancements, there still exist poverty, poor organisational performance, punitive dismissals (Gilson, 2011), moral erosion, corporate and government malfeasance, economic collapse and massive unemployment (Avolio & Gardner, 2005; Cooper et al., 2005; Gardner et al., 2011; Wong & Cummings, 2009). Within these turbulent environments, other global challenges such as HIV/AIDS, endemic violence, protracted shortage of experienced accomplished leadership in the healthcare sectors and environmental disasters (World Economic Forum WEF, 2016) necessitate emerging leadership, which evolves away from the past decades of traditional leadership approaches. Moreover, leadership, which was once understood as strong individuals exercising power over others, is now focussed on leaders at all levels of the organisation, sharing mutual power and influence; leadership is process-centred, within a collective context and is non-hierarchical (Kezar, 2006) and integral (Wilber, 2007). In this chapter, the difference between leadership and management is described, theories on leadership are explored, the rationale provided for choosing authentic integral leadership and emergent techniques to become authentic integral leaders, elucidated.

7.2 DISTINGUISHING BETWEEN LEADERS AND MANAGERS

Opportunities to fundamentally change our approach to how we live, work, interact with one another and transform the trajectory of human development in this fourth industrial revolution (4IR), are imminent (Schwab, 2016). Understanding our worldviews; which are individually established beliefs, principles, expectations and assumptions embraced consciously and unconsciously about creation, or how we interact in society and our purpose in the world, provides insight into what influences our perceptions, values and our behaviours. Various factors, such as experiences, culture, environment and socialization, are filters which can influence how one views the world. The evolution of worldviews on leadership has shifted from traditional, modern, and postmodern to integral worldviews (Kouzes & Posner, 2015; Wilber, 2005). Traditional worldviews of leaders are described as an authoritarian attitude in which rigid bureaucracy to follow the rules, preserve the *status quo*, power and influence, are evident. Those in power do not allow questioning, using their authority to oppress individual reasoning, whereas the modern worldview of leaders focuses on achieving

goals, change with economic progress, convenience, individual advancement and materialism manifest.

In the postmodern worldview, the emphasis on change is an individual self-expression and the deeper meaning of leadership becomes essential (Caldwell et al., 2010). Wilber's (2005) theory on integral leadership, Goleman's (2014) emotional intelligence and social learning and Senge's (2014) system thinking evolves, the leadership paradigm into a holistic worldview. This holistic worldview is an integration of experiential, transpersonal, collaborative and collective consciousness: interconnected core dimensions. In addition to this, the individual's intention and action, together with organisational culture and systems, are integrated.

Authenticity, self-expression, simplicity, spirituality and sustainability are values expressed in postmodern leadership (Coxen et al., 2016). The integral worldview on leadership as described by Norton and Palazzolo (2012), involves inclusivity, and *how can the leader* make a difference becomes the focus. According to Collins (2014), appropriate change and values like assistance, contentment, integration, personalization and transcendence become apparent in integral leadership. Morality, ethical values, negative capitalism and egocentric behaviour (Northouse, 2017) are destroying our social cohesion and this erosion is percolating our governments public service and private sector organisations (Durkheim, 2016). A leader's worldview can either endorse this declining trend or alter the progress of this erosion; by the leader connecting with co–workers, they advance and reinforce their organisational values.

This new paradigm for managers and leaders is no longer centred on organisational structure, tasks or productivity; the health, culture, systemic communications, relationships and morale of the organization (Ross, 2012) have become paramount. Literature reviews indicate that the balance between the qualities and roles of managers and leaders are shifting from self-absorbed individualism, fragmented organisational sub-system relationships to collective beneficence (WEF, 2016).

Thus, in dynamically changing organisations, Forrester (1994) refers to successful management as the process of selecting relevant information and timeously converting that information into action to achieve desired objectives. Leaders, on the other hand, subtly influence the system dynamics through the sources of information considered important enough to justify action by explicitly describing concepts in designing policies and creating conditions that govern decision-making (Forrester, 1994). Successful information-processing understanding of the manager-leader relationships are based on the balance between the design of chosen policies, the reflection of current environments, and remedial action taken to bring tangible conditions into existence (Morecroft, 2015). According to Luthans (2002), in a multicultural environment the manager's role can be described as a strategist, organizer,

supervisor and assistant manager. Effective managers have the capability to recognize, forecast and control human behaviour, productivity and performance in the organisation. Jack Hawley (1995) described the management spiritual leadership model in which the functions of managers and leaders differ. The following distinction between manager and leaders' roles is adapted from this model:

MANAGEMENT	LEADERSHIP
• Goals & Objectives	• Vision
• Priorities	• Values
• Plans & Strategies	• State of Mind
• Management of People	• People's Energy & Heart
• Organisational Structure	• Organisational Culture
• Teams	• Community
• Error Correction	• Acknowledgment
• Problem – Solving / Decision – Making	• Presence
• Honesty	• Integrity
• Getting	• Giving
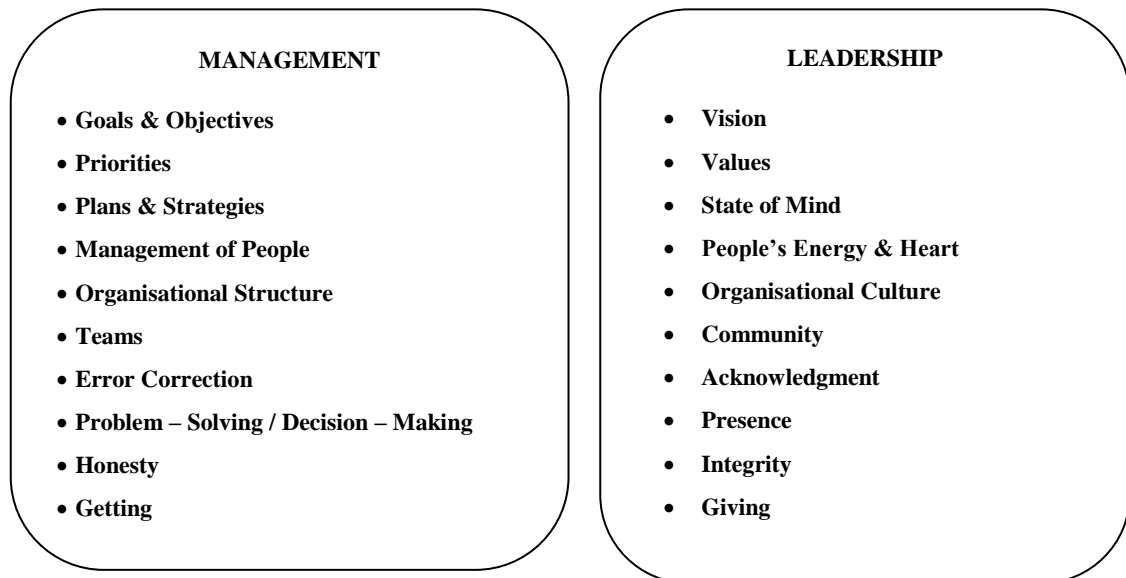
Figure 45: Management Leadership Model (Adapted from Hawley, 1995)

In Figure 45, Hawley' s (1995) ontological view of the roles of the manager is outlined as being concerned with organisational structure, people, processes, problem-solving and resource management, whereas leaders are focused on people's energy, heart and spirit. The leader's role is grounded in qualities like integrity (Avolio & Gardner, 2005), character, belief, reverence, conscience and consciousness. The spiritual vacuum and moral decline evident today have generated an environment in which societal and organisational psychoemotional dysfunction manifests as stress, trauma and loss of humanness. Hawley (1995) expanded the management leadership model to include the spiritual dimension in which values are fundamental elements to reawaken morality, culture and ethics in organisations as referred to in Figure 46.

MANAGEMENT

- Goals & Objectives
- Priorities
- Plans & Strategies
- Management of People
- Organisational Structure/ Teams
- Error Correction
- Problem Solving/Decision Making
- Honesty
- Getting

LEADERSHIP

- Vision
- Values
- State of Mind
- People's Energy & Heart
- Organisational Culture/ Community
- Acknowledgment
- Presence
- Integrity
- Giving

SPIRITUAL BASIS LEADER AS

- Covenant – Sense Maker
- Virtue - Steward
- Equanimity – Yogi
- Spiritual Awareness - Guide
- Unity – Whole – Maker
- Gratitude – Optimist
- Inner Higher Power – Warrior
- Truth – Moral Architect
- Service – Servant

Figure 46: Management Spiritual Leadership Model (Hawley, 1995)

As a sense maker, the leader's role is to understand the organisational context, culture, and the complex ecosystem dynamics by attuning to the people's paradigm and listening to feedback from the environment. Leaders who integrate virtues like trust, truth, service, giving, gratitude and acknowledging people's worth and their contributions provides opportunities to develop character and organisational integrity. Spiritual awareness guides the leader into a state of equanimity and unity in which their higher purpose and authenticity is experienced (Hawley, 1995).

Integral leadership theories describe spiritual intelligence (SI) as personal authentic attributes, for example inner peace, mindfulness, a whole brain approach or the integration between right and left brain, systems thinking and confidence created by the inner being's values, consciousness and character traits (O'Brien, 2014). Visionary leaders who transform themselves have strong spiritual attributes or SI, resonate optimism, express humanity, embrace vulnerability, inspire others and are highly interactive and able to reinvent organisations confidently by impacting on human systems (Onghena-'t Hooft, 2018). Authentic leaders display deep interest, have profound listening skills and empathy to enable collaboration among actors thereby transforming human systems and guiding organisational performance (O'Brien, 2014).

A distinguishing behaviour of authentic integral leaders who have developed their SI is the attitudinal and consciousness shift from *I, me* and *mine* to *we, us* and *ours* or in other terms their transformation from selfishness to selflessness. O'Brien (2014) also describes authentic integral leaders who demonstrate respect and self-dignity and revere individual worth when facilitating active participation and cooperation among actors thereby creating win-win situations which dismantle the silo mental models and fragmented systems. Integrated humane organisational systems are the focus of authentic

leaders and they create a culture of extraordinary ethics by being compassionate, respectful and benevolent which involves strengthening relationships inclusive of all actors (Metcalf, 2015).

Another transformative trait in the authentic leader's mental model is the transference in attitude from a mental model in which *information is regarded as power,* to a mental model with mature emotional intelligence where the principle *character is power* guides the leader's behaviour (Buehler, 2016). Lewis (2012) refers to transformational leaders engaging relationship structure as described in Figure 47. Leaders acting with integrity, being accessible, consistent, engaging communication and networking techniques like questioning, teamwork and building shared vision, enable individuals to develop their full potential. When the leader's attention is on the well-being of the employees, their behaviours demonstrate being honest, being sensitive to the needs of others, encouraging progress and facilitating change; then, trust is built and ownership for responsible ethical conduct becomes evident (WEF, 2017). Leaders' authenticity is grounded by showing courage in resolving complex issues and questioning the current organisational status quo with the intention to evolve the employees, systems and processes (Lewis, 2012).

Network
Partnerships
Co-deciding resolution on
Complex challenges
Changing organisational status quo

Communication
Engaging individuals
Showing genuine concern
Enabling
Being accessible
Encouraging questioning

Authentic
Leaders Core Values
Acting with integrity
Being honest and
Consistent

Teamwork
Building shared vision
Resolving complex issues
Facilitating change sensitivity

Figure 47: Engaging Relationship Structure of Transformational Leaders
(Adapted from Lewis, 2012)

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Game changers in successful organisations are to create a critical mass of authentic integral leaders at all levels of the organisation (UNESCO, 2014). Leaders with a strong sense of understanding human behaviour, the ability to assess employee talent and potential and the skill to codesign organisational strategic vision, offer an opportunity to balance the leadership and governance functions of managers and leaders (Cavanaugh, 2016). Active participation of actors at all levels of the health ecosystem with diverse functions, skills and ability necessitate resilient aptitude (Hawley, 1995) among the leadership, to ensure the pluralistic and fragmented health system is redesigned to sustainable decentralized structures (Gilson, 2011). Design driven policy, communication and networking systems linking feedback mechanisms through the decentralized structures, facilitate adequate balance in the health ecosystem (Olmen, 2012).

Authentic leaders as referred to by Coxen et al., (2016, p. 3) is having the ability to develop trust among employees and engender "organisational citizenship behaviour". Additionally, the role of trust in the "workplace" is influenced by trust in the leadership, in the organisation and among co-workers. Trust definitely influences organisational and social morality, social responsibility and social conscience (Coxen et al., 2016). The current context in the public health care sector is one of environmental chaos, where disruptive change and the arduous work environment lead to lack of trust in leadership (Gilson, 2016). Furthermore, relationships among co-workers, supervisors and management require authentic leaders to display trust and belief in their self-worth, skills, performance and potential (Coxen et al., 2016).

Likewise, organisational critical success dynamics are achieved when authentic leaders' behavioural characteristics, for example, their values, purpose, passion, relationships, connectedness, self-discipline and consistency, are demonstrated (Northouse, 2017). These behavioural characteristics have been described according to George's (2017) authentic leadership model as comprising five dimensions.
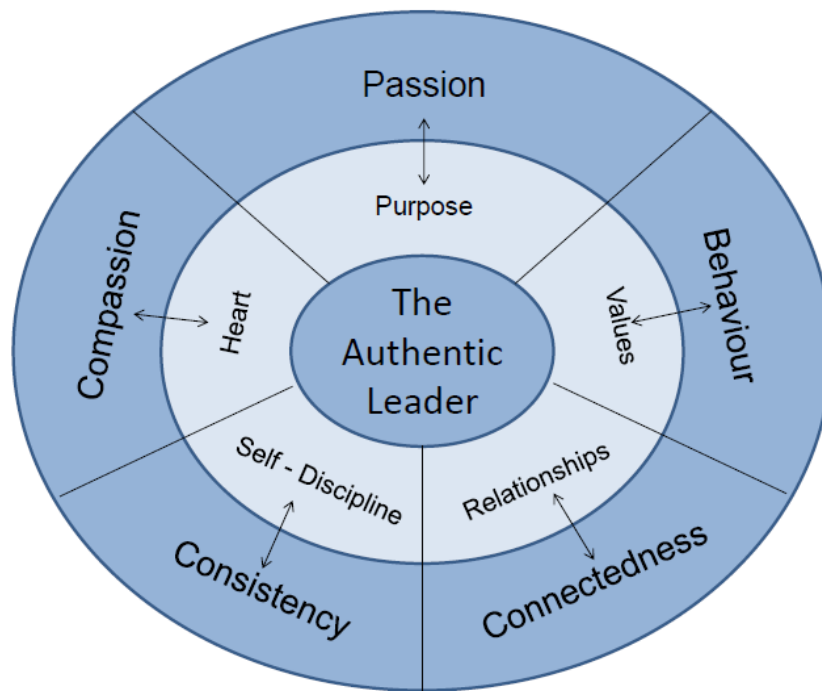
Figure 48: Authentic Leadership Model (George, 2017)

In Figure 48, the authentic leadership model as described by George (2017) centres on the various qualities which authentic leader do exhibit as their co-workers respond confidently with resultant organisational success. These noticeable qualities in authentic leaders include an intellect with purpose and clear perception of their vision. Northouse (2017) explains that the authentic leader's sense of purpose is deeply established as passion which inherently motivates, inspires and fosters a caring attitude. Their behaviour is in harmony with their values, like setting and maintaining high standards of performance. To ensure all employees understand their roles and responsibilities, policies are co-designed, thus enhancing ownership and compliance to high quality work performance.

Authentic leaders also share compassionate, open, respectful and transparent communication in which they psychosocially and emotionally connect with their employees and co-workers (Avolio & Gardner, 2005). These relationships fundamentally shape the work-life interactions and transform behaviour towards personal and organisational development and progress. In this enabling environment, authentic leaders become catalysts for change as co-workers respect and trust their leader, understand the need to change and commit to achieving the organisational goals. Another quality of the authentic leader is self-discipline and consistency; for example, this refers to their attention to detail and their determination against all odds. Similarly, their ability to keep levelheaded, composed and their reliable behaviour, create an unwavering organisational dynamism (Northouse, 2017). Keeping alert to systemic changes and timeously informing co-workers, the authentic leader is able to adjust work processes to meet organisational goals. Hawley (1995) described the other quality of consistency in the authentic leader's beliefs, conversations and actions resulting in a caring ethos, contentment amongst co-workers and creative work environments. Cavanaugh's (2016)

epistemological view is that congruence between being aware of one's interactions, being accountable; acting with integrity, inclusivity in resolving challenges and reflecting on the values and beliefs distinguishes leaders from managers.

7.3 THEORIES ON LEADERSHIP

Several perspectives on leadership have been studied in the past. Lewis (2012) viewed leadership by distinguishing the leadership style, for example, theories on traits of leaders or the notion of the leader's ability or the personality traits leaders are born with instead of a style one can learn. Behavioural leadership theories explore how leaders act and differentiate tasks, structure and relationships which motivate their behaviour (Moos, 2011). The manner in which leaders behave in various environments or change task performance was constructed on the situational or contingency theory of leadership.

Other leadership theories include the charismatic (Shamir et al., 1993); transformational (Bass & Avolio, 2006); servant (Stone et al., 2004), and visionary leadership (Kirkpatrick, 2004). In these theories, emphasis is placed on how leaders generate and manage change. Emerging leadership research focuses on positive transactional relational leadership theories (Zbierowski & Góra, 2014). For example, leader-member exchange theory (LMX), value-based leadership theory and contextual leadership. These theories focus on leaders engaging with co-workers in relationships established on their values, morals and ethical principles (Engelbrecht et al., 2014) and their awareness of the context in which they function.

Currently, research is centred on authentic leadership in academia, business and public sector organisations (Hsieh & Wang, 2015; Men & Stacks, 2014; Walumbwa et al., 2008). According to Walumbwa et al. (2008, p.2) authentic leadership theory consists of "self-awareness, balanced processing, relational transparency and internalized moral perspective". Additionally, Gardner et al. (2011, p.2) and Men and Stacks (2014, p.8) describe "self-awareness" as the leader's ability to understand oneself, be conscious of one's beliefs, strengths, and of the developmental needs and the effect these qualities have on relationships. The notion of balanced processing referred to by Gardner et al. (2005) and Walumbwa et al. (2008) is the leader's impartial appraisal and analysis of pertinent information, bearing in mind the opinions of others when decisions are made. Moreover, "relational transparency" as stated by Stander et al. (2015, p.2) is the leader's skill to willingly disseminate information and to behave in an unassuming way. Likewise, Gardner et al. (2011), Ryan and Deci (2003) and Walumbwa et al. (2008, p. 104) described the leader's "internalised moral perspective" as an aptitude to endure external stresses by committing to their own "ethical and moral values".

Thus, co-workers' perceptions of the authentic leader are measured by how leaders express their authenticity. Bamford et al., (2013) describe authenticity as the extent to which the leader nurtures respect, credibility, and trust. According to Avolio and Walumbwa (2014) and Stander et al. (2015), authentic leaders inspire and motivate co-workers through their strong interpersonal skills. This interpersonal relationship between the leader and co-workers strengthens communication with the leader, builds trust (Beddoes-Jones & Swailes, 2015) and commitment to the organisation and creates a sense of identification among the co-workers (Avolio & Walumbwa, 2014).

Consequently, authentic leaders make a deep impression on their co-workers and the organisations in which they work (Pues et al., 2012). Furthermore, Blau (2017) proposed that leadership behaviour is created on the social exchange theory (SET) reciprocity, in which people's actions depend on rewarding reactions from others. Hence this social exchange can be observed as ethical guidance and trust between leaders and co-workers' inter-relations (Hsieh & Wang, 2015). Reciprocity has also been described by Coxen et al. (2016) as trusting relationships in an organisation which is generated from the exemplary behaviour of line managers and authentic leaders, and by resonance those managers' values, actions and feedback are fundamental in influencing perceptions, awareness and trust in the organisation. Another theorist, Wilber (1997), described integral leadership using a four-quadrant model comprising of *I, IT, WE and ITS.*

	INDIVIDUAL		
INTERIOR	**I** **Subjective** **Interior Individual** *Intentional Values* *Consciousness* **Thoughts Emotions** **Perceptions** **Truthfulness** **Integrity**	**IT** **Objective** **Exterior Individual** *Behavioural Values* **Empirical** **Observation in Time** **and Space Truth** **Propositional**	**EXTERIOR**
	WE **Intersubjective** **Interior** *Collective* *Cultural Values* **Shared Values** **Meaning Justness** **Cultural Fit**	**ITS** **Interobjective** **Exterior** *Collective* *Social Values* **Systems Networks** **Functional Fit** **Social Systems Mesh**	
	COLLECTIVE		

Figure 49: Four Quadrants of the Integral Theory (Adapted from Wilber, 2005)

Wilber (2005) states that the integral theory on leadership is shaped by the leader's worldview based on four perspectives. In Figure 49, the outline of Wilber's integral theory framework, which denotes connecting all these perspectives together, creates four quadrants: *I* based on intentional values and consciousness, *It* referring to behavioural values, *Its* denoting social values system networks and structures, and *We* signifying collective cultural values is the focus. Wilber's (2005) ontological theory is a two-dimensional framework, symbolizing interconnections between an inside-outside element and an individual-collective element. The horizontal axis represents the interior-exterior element that corresponds to the subjective or individual's reflective experience in relationship with the objective or mutual behaviour-based reality. The vertical axis denotes the individual-collective dimension, which refers to the relationship of the experience of intentional behavioural values like self-agency and that of sociocultural values or community.

Another leadership theory is Goleman's (2002) theory on leadership, which is constructed on emotional intelligence (EQ). Emotional Intelligence can be defined as the individual's aptitude to recognise, practise, understand, and manage his or her emotions. EQ, when used positively, relieves stress, enables effective communication, and facilitates the capacity to empathize with others, cope

with life challenges, and resolve conflict. Mature EQ influences various diverse aspects of daily life, such as an individual's mannerisms, how he conducts himself and the way they influence interactions with others. Additionally, elements in the leadership process, for example, self-awareness, understanding, passion and enthusiasm, are products of attuned emotions emanating from individuals. These elementary values are revealed at every level of the organisation and not only top management of the organisation. These EQ leadership elements relate holistically to the organisation and reflect the emotional maturity and balance of the organisation as a whole rather than as that of the individual in isolation. Leaders with a mature EQ have deep self-awareness of their own thoughts and feelings and how these impact on their performance. These leaders' interaction with co-workers reflect their close attention to those with whom they regularly interact and their skill to truthfully understand the thoughts and sense the feelings of the co-workers.

This leadership paradigm in which a strong EQ is present, influences the ecosystem further than the organisational dynamics and impacts beyond the immediate workplace (Goleman et al., 2002). Senge's (2016) leadership theory notes that the *leader's focus matters*. Accordingly, Senge's theory describes leaders as having to essentially guide their own attention and that of their team and organisation. A skilful leader knows when to focus inward, when to attend to others around him, and when to scan the wider horizon (Senge, 2006). In the 4IR, emerging leadership theories are focusing on EQ, SI and consciousness, and the integral leadership model is becoming central to implementing decisions, thereby ensuring fundamental wholistic health of human society and our organisations.

7.4 RATIONALE FOR CHOOSING AUTHENTIC INTEGRAL LEADERSHIP IN THIS STUDY

The high attrition among professional staff, the mistrust and instability in the KZN health ecosystem requires leaders to restore confidence in the KZN DOH (Focus Group). Coxen et al. (2016) observed that personnel in the public health care sector were confronted with challenging work environments which included a lack of trust in leadership. In 2011, SA National Planning Commission (NPC) developed the National Development Plan (NDP). One of the NDP goals is to strengthen the SA health system by optimising human capital, improving quality care and enhancing effective leadership. Thus, the DOH in 2011 incorporated leadership as one of its national strategies to advance the quality of health care services. Furthermore, the Health Systems Trust (2013) and Okanga and Drotskie (2015) reported that *service delivery inefficiencies and customer dissatisfaction* were the main extraneous challenges in the SA public health sector. Benatar (2013) George et al., (2013) and the Health Systems Trust (2013) stated that *internally poor management structures and a lack of trust in leadership* in the public health sector existed. In this context of poor service delivery, customer dissatisfaction, poor management structures and lack of trust in leadership, the theory of Avolio and

Gardner (2005) Beddoes-Jones and Swailes (2015), who regard authentic leadership as a positive form of leadership, is of specific significance in the health organisation. Applying the authentic leadership theory can affect organisational culture, as the qualities of an authentic leader have positive influence on employee and organisational behaviours (Zbierowski and Góra, 2014). Thus, the result of authentic leaders demonstrating workplace trust is a precursor to organisational citizenship behaviour among co-workers (Clapp-Smith et al., 2009; Datta, 2015; Errazquin, 2013). Organisational citizenship behaviour is the employees' individual choice (Bester et al., 2015). Diedericks (2012) theorized that organisational citizenship comprises two aspects, an interpersonal orientation and an organisational orientation. When staff willingly offer support to co-workers, it is referred to as interpersonal orientation, whereas when staff enthusiastically exercise extra effort on behalf of the organisation, it denotes organisational orientation (Organ & Paine, 1999; Rothmann, 2010). Workplace trust (Walumbwa et al., 2011) which authentic leaders establish, encourages organisational citizenship behaviour (Hsieh & Wang, 2015).

Several studies indicate that leaders are measured by their major influence on their staff's behaviour (Avolio et al., 2004). When staff sense that they are trusted, they devotedly extend themselves and express strong commitment in their work (Du Plessis et al., 2015). Their beliefs, character and actions of the authentic leader inspires staff to willingly trust the leader (Heyns &Rothmann, 2015). Walumbwa et al., (2008) explain that authentic leadership is a practice of leadership that *concentrates on positive psychological abilities and a positive ethical environment*, that nurtures the four dimensions of authentic leadership (Walumbwa et al., 2008). These four dimensions of an authentic leader as described by Walumbwa et al. (2008) are *self-awareness, balanced processing, relational transparency and internalised moral perspective.*

Additionally, authentic leadership has been studied in various environments (Onorato & Zhu, 2014), specifically in a Western context (Avolio & Walumbwa, 2014) and has been validated to have a progressive influence on organisations, teams and individuals (Avolio & Walumbwa, 2014; Rego et al., 2013). According to Du Plessis (2014); Stander et al., (2015), limited studies on the importance of authentic leadership have been conducted in the SA context. Even though the most recent study in SA conducted by Heyns and Rothmann (2015) investigated the leaders' impact on employee trust, there is still limited empirical evidence relating to the relationship between authentic leadership and workplace trust, specifically in the public health care sector in SA.

According to Neider and Schriesheim (2011), leaders who are observed as being objective, authentic, and who share information with others and listen to co-worker's concepts, philosophy and thoughts, have greater possibility to inspire trust among supervisors and co-workers and in the organisation. Also, co-workers' rationale to justify leadership is that authentic leaders are perceived to be

trustworthy, genuine and reliable (Gardner et al., 2005; Ilies et al., 2005). In Wilber's (2007) integral leadership theory, growth, development, or evolution are evident. These stages or levels of development as described by Wilber (2007) are fluid and denote flowing waves of unfolding. The levels of development of *I* for example, refers to the self, unfolding from egocentric to ethnocentric to worldcentric, or transcendence from body to mind to spirit. Wilber (2007) noted that energy phenomenologically expands from gross to subtle to causal. He described the phenomenological evolution from group awareness which allows social systems to expand from simple groups to more complex systems like nations, and eventually even to global systems.

The significance of Wilber's integral leadership theory can be applied to developmental leadership, dynamic systems and organisational culture. Moreover, integral leaders, according to Donkers (2016), are intrinsically cognizant about their self-development, their conscious thinking map, interpersonal, moral, needs, and managing their ego is the focus of development. These leaders' capacities, spoken words, behaviours, desires, and understanding of self and others, are consistently harmonizing. Integral leaders also have the ability to influence interactions by changing their behavior and language to match the level of the person with whom the communication is taking place (Donkers, 2016). These abilities of integral leaders have progressive impact on employees and organisational behaviours and can be adopted especially in the health sector. Thus, the rationale for choosing authentic integral leadership capabilities in this study can be implemented to address the extraneous challenges in the SA public health sector and resolve leadership service delivery inefficiencies and customer dissatisfaction.

7.4.1 Critique of Authentic Leadership Theory

Cooper et al. (2005) offer an analysis of authenticity which is comprehensive and multi-dimensional and which includes elements referring to the essential self of the leader, their moral paradigms, values, psychological traits, behaviours, attributes, self-awareness, reflection and character. These diverse elements also function on multi-levels of the individual, team and organisation. Thus, their definition and analysis of the complex nature of authenticity make it challenging to measure authentic leadership behaviours. In this study, the acknowledged definitions of authenticity referred to examine authentic leadership theory by being aware of the boundaries that these definitions pose.

Existentialist philosopher Heidegger (2009) provided legitimacy on authentic leadership theory by referring to authenticity as resoluteness, which is the individual's response to appease one's conscience when guilt is experienced (Gardiner, 2011). Heidegger (2014) also describes tensions within the self as the self tries to negotiate between itself and the competing interests of others. Behaviours such as being true to oneself, are reinforced by Heidegger's analysis of the fundamental

existential principles of authentic leadership theory, in which the conscience and feelings of guilt are experienced (Gardiner, 2011).

Another authentic leadership theorist is Kezar (2006), who postulates that authentic leadership is established on trust, self-worth, self-confidence of the individual and belief in oneself, as well as the notion that self-made leaders are resilient and achieve goals even exclusion of involvement of others by their sheer will power. Leadership theories of the self, according to Gardiner (2011), always take place within systems of power and are never neutral. Personal history is an essential antecedent for authentic leadership development (Crossan et al., 1999) yet, in Gardiner's (2011) analysis of authenticity, there is no justification of how personal history and social circumstances affect a person's ability to lead. Gardiner (2011) indicated that the individual's personal history and social experiences remain subconsciously undetectable and its impact is not evident.

Crossan et al. (1999) defined four social psychological processes by which knowledge and personal experiences that are embedded in the individual and organisation occurs. These social psychological processes are described as "intuiting, interpreting, integrating and institutionalizing" (Crossan et al., 1999, p. 4). Intuiting comprises of feedback processes through which individuals frequently at a subconscious level recognize patterns and create connections from their personal experiences. Thus, according to Crossan et al. (1999), personal experiences influence leadership development and practice. The cognitive maps of tacit knowledge as explained by Crossan et al. (1999) are interpreted by the individual through using words or actions which are shared with others. In the integrating stage, ideas are shared through dialogue with others as they discover collective verbal language and begin to create mutual meaning and common understanding.

Crossan (1999) also observed that consistent conversations and continuous interactions advance shared meaning among group members. Transference of knowledge, creating new concepts and understanding among group members are learnt through these conversations. Crossan et al. (1999, p.9) referred to institutionalizing, as the organisational culture is created by" individual and group learning" which is "embedded in the strategy, structures and routines of the organisation". In addition, Argyris and Schon (1978) argue that individuals require access to information enabling practice, yet some organisational norms preclude such information disclosure. These norms are perceived by the leadership's attitude which hinders individual learning and prevents knowledge from being shared openly. Individual and group learning result in organisational learning (Vera & Crossan, 2004) that can be regarded as a process of transformation in thoughts and actions of individual and groups in the organisation. Authentic leaders encourage organisational learning by facilitating authentic, open and honest conversations among leadership and co-workers. Consequently, the quality of the dialogue is essential to organisational behavioural learning for example when co- workers feel safe and trust

leadership, revealing root causes of and correcting errors or reconciling interpersonal differences are elicited (Vera & Crossan 2004).

Another important criticism of authentic leadership theory, according to Gardiner (2011), is the notion that authenticity does not consider power, privilege and silence. Gardiner's (2011) criticism is that authenticity is displayed differently depending on the consequence of an individual's spatial and temporal situation. Thus, fundamental to enabling authentic conversations and organisational learning, power relations and leadership practice requires opening up spaces for transformation of practice and leadership capabilities (Gill, 2018). These authentic leadership competencies include "self-awareness, balanced processing, self-regulation and relational transparency" (Ilies et al., 2005, p.4; Kernis, 2003, p.8; Gardner et al., 2005, p.8; Avolio &Gardner, 2005, p. 8). According to Luthans and Avolio (2003), authentic leaders consistently engage in positive self-development which is a result of deeper self-awareness, and self-regulated, confident behaviours.

7.4.2 Authentic Integral Leadership in Organisational System Dynamics

When the leader and leadership practices in the system are integrated with each other and when co-workers serve a higher purpose, the possibility of sustainable successful organisations exist (Onghena-'t Hooft, 2018). Human relationships in complex organisational system dynamics require authentic leaders to inspire co- workers and to integrate systemic processes, thereby enabling vital transformation of the organisational culture (Luthans, 2003). Similarly, authentic leaders create an organizational environment in which co-workers are motivated to self -actualize (Onghena-'t Hooft, 2018) through understanding why they do what they do, appreciating how they perform really matters and serving the higher purpose for which the organisation stands. Authentic leaders make opportunities available to meet development needs of co-workers (Avolio & Gardner, 2005) by being considerate of diverse organisational cultures.

In this enabling organisational culture, expanded consciousness, harmony (Erasmus et al., 2017) and complete engagement (Adair, 2009) become the natural path to extraordinary sustainable progressive impact and great results. Authentic leaders facilitate paradigm shifts (Scharmer, 2009) within the organisation and as consciousness expands, co-workers transform their behaviour and become aware of their contribution to the economical, geo-political, ecological, systemic and societal service of Humankind, Society and the World (Onghena-'t Hooft, 2018). These complex and powerful paradigm shifts necessitate exemplary leaders, who are completely authentic with their higher purpose and who are acquainted with accessing inspiration and information from the universal wisdom and from Nature (Onghena-'t Hooft, 2018). Universal wisdom as explained by Goleman (2002) is accessed from one's life experiences, actions and emotional intelligence and is grounded in emotional capabilities like self-

awareness, authenticity, empathy, service attitude and collaboration skills, which have dynamic impact on effective leadership (Saxena et al., 2017). Integral leaders, who are visionary architects, have the aptitude to use collective wisdom in decision-making and create innovative methods of manifesting authentic behaviour.

By acknowledging our connectedness and respecting that individual contributions to the holistic context transforming them, expressing their humanity and embracing vulnerability, are possible. According to Avolio and Gardner (2005), the result of this vulnerability; which refers to open-ness to change, is the leverage for transforming the organisations. Systemic variables like emotional commitment, staff turnover intention, demographic variables, perceptions of organisational climate and organisational outcomes specifically affective commitment to change (Kiersch & Byrne, 2015) are significantly related to the interaction of authentic integral leadership with co-workers. Kiersch and Byrne (2015) also clarify that awareness of integrity justice perception mediates relationships feedback, connecting authentic leadership with affective commitment and turnover intention.

Berger (2008) has documented that the foundation for contemporary organisations is affective internal communications as a fundamental process in which co-workers interact, disseminate information, derive meaning and build the organisational culture and values. Authentic integral leaders envision creating the organisational system culture by crafting a shared vision (Wilber, 2007), modelling a moral purpose in action, inspiring meaningful action and fostering genuine commitment (WEF, 2016).

Likewise, research evidence shows that affective internal communications act as a dynamic sub-system contributing to emerging positive employee attitudes like trust, organisational commitment (Dhammika, 2016), job satisfaction (Gray, 2004), organisational identification (Smidts et al., 2001), and positive employee-organisation relationships (Rhee, 2010). These characteristics lead to greater productivity, better-quality performance, organisational learning (Berger, 2008), constructive communication interactions between leaders and employee, and healthier external stakeholder relations (Rhee, 2010). Positive organisational behavior creates an environment for leaders to focus on co-worker's strengths rather than weakness (Gardner & Schermerhorn, 2004). Essential values typically present in high performance systems are confidence, hope, optimism and resilience (Luthans, 2003), as these values are expressed in positive organizational behavior

Positive organizational behavior was described by Luthans (2003) as leaders being clearly concerned with human resource strengths and psycho-social capabilities which require acknowledgement. These behaviours need to be measured, developed, and successfully accomplished for individual and organisational performance and progress. Gardner and Schermerhorn (2004) explain that when

leaders concentrate on their psycho-social-emotional development and express congruence between their inner thoughts, beliefs and emotions, then their authentic behaviour reflects the true self. These emergent traits of authenticity in leaders as inspirational role models also resonate between leaders and among co-workers, which reveals the organisational values like trust, with resultant high performance. Avolio and Gardner (2005) explained that the authentic leader's focus of attention on developing talent, and selecting the right employee for the right job, enhances motivation among co-workers and justifies the emergence of future leaders. Moreover, authentic leaders create an organisational culture in which a caring ethos and values like benevolence, being honest, willingly taking on extra responsibilities, and being loyal to the organisation, or a universalism in which equality, social justice, and being broad-minded (Avolio, 2005; George, 2003; Michie, 2005) are practised, help achieve organisational goals and excellence at work.

Although these characteristics are shared in charismatic, transformational, spiritual, servant or ethical leadership styles (Avolio, 2005; George, 2003; Michie, 2005), authentic leadership is distinctive. In Figure 50, the systemic interconnections of the authentic leaders' values, for example leading with purpose and integrity, result in building sustainable organisations, in motivating their employees to deliver excellent client services and in creating long-term development for all stakeholders (George, 2003). Authentic integral leaders' self-awareness (Wilber, 2007), self- reflection, self-regulation, selflessness and leading the system by example, also enliven the strengths and nurture co-workers, developing their authenticity (WEF, 2016). The ontological perspective (Gardner et al., 2005) of authenticity is that it contributes to co-workers' well-being, thus their attainment of justifiable and genuine performance, and walking the talk, to build systemic leadership capacity, becomes a reality.
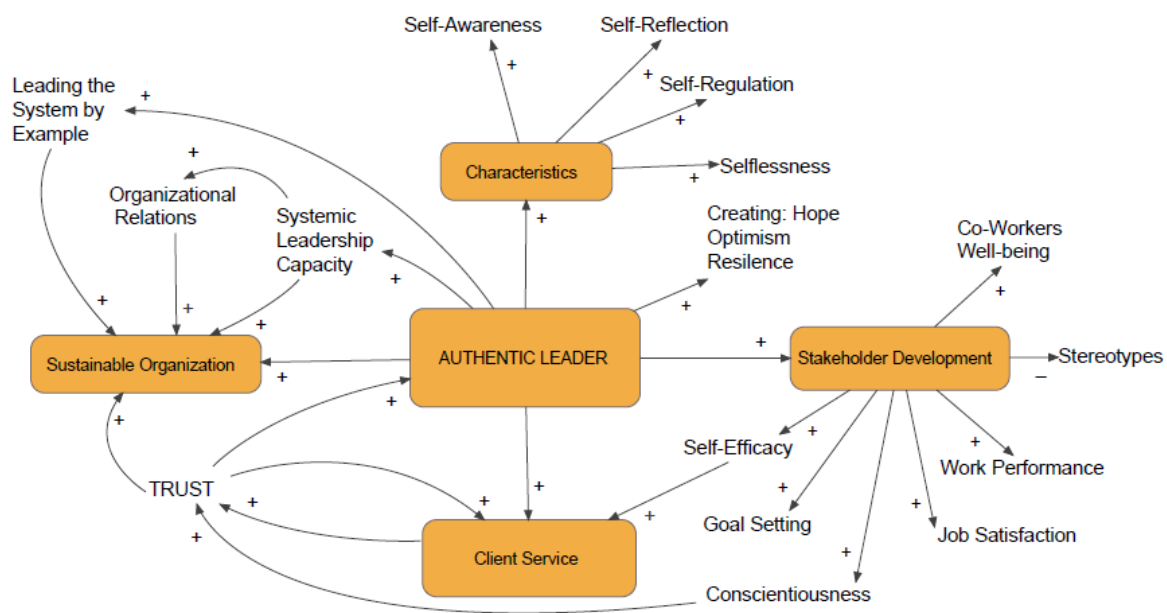
Figure 50: Authentic Leaders Psychosocial Feedback (Focus Group)

As illustrated in Figure 50, authentic leaders overcome stereotypes, and make a difference in organisational relations by focusing on the co-worker's self-efficacy (Stajkovic, 2006), by creating hope (Synder, 2003), optimism (Seligman, 2014) and resilience (McGregor, 2005). These relational values of self-efficacy, hope, optimism and resilience are interconnected with work performance, job satisfaction, goal settings, conscientiousness, and the psychosocial feedback leads to trusting relationships.

According to Luthans and Avolio (2003), authentic leaders' self-efficacy builds personal confidence among co-workers and as co-workers learn about themselves, they are able to recognize their capabilities. Moreover, organisational gains are that confident employees always perform well under pressure, stress, and face challenging tasks effortlessly. Likewise, confident employees exhibit what Synder (2002) explained: that hope is the connection between the will and the neurolinguistics paths (Chellamani, 2012) to goal directing activities which have positive effects on physical, mental, intellectual, social and spiritual health of employees and the organisation. Luthans (2003) described the effects of managers who display hope in the work environment and gain greater profits, with more satisfied employees and lower turnover. Authentic leaders are also optimists and this attitude promotes organisational stability in which internal systemic processes, human relations and well-being endorse organisational success. When employees express joy, pride, job satisfaction, and enthusiasm in their work, the result is success and high achievements (Gardner & Shermerhorn, 2004). According to McGregor (2006), authentic leaders similarly strengthen resilience among co-workers as they are assured of confronting adversities and challenges by enduring and recovering

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swiftly with emerged innovative value-added leadership skills. These experiences provide opportunities for employees to emerge with renewed strength, positive expectations, high performance and committed passion (Gardner &Schermerhorn, 2004).

In these interactions between authentic integral leaders and co-workers, a process of transformation connects authentic leadership characteristic variables, for example, hope, trust, positive emotions, integrity, truthfulness, shared values and optimism, to the follower's attitude and ethical behavior. Consequentially, the positive individual and organisational impact of authentic leaders and co-workers is on sustained authentic job performance, individual and organisational reputation (Avolio & Gardner, 2005).

7.5 EMERGENT TECHNIQUES TO BECOME AUTHENTIC INTEGRAL LEADERS

At the World Economic Forum, Tate (2017) noted that emergent controversy in leadership literature indicates that leadership models intended in the past decades, cannot fully comprehend the leadership dynamic required in organisations effectively functioning in the 21st century's knowledge-driven, organisational economy. Kezar (2006) described that the shift in the way leadership is perceived has led to the emergence of new leadership models which are now at the forefront of leadership research, for example, ethics or leadership and spirituality, leaders collaboration or partnering, leadership empowerment, leadership and social change, emotional intelligence, leadership in globalisation, entrepreneurialism, and accountability.

The notion from systemic failure to systemic leadership in which Tate (2017) referred to collective leadership within and across collaborating organisations, can be developed through authentic leaders' understanding of systemicity, attaining self-knowledge and skills to operate organisations as systems, which can be realized. Also, Hellman (2012) explained that authentic leaders need to enable change. Change requires vigilant management, as it is a complex process that elicits variable reactions, interpretations and emotions. Similarly, literature emphasizes that a critical perspective in change management is the role that power and discourse play in resistance (Pieterse et al., 2012).

Thus, when leaders use their position power and authority to demand performance from employees, then the unequal power relations increase resistance to change. Also, misalignment in the discourse illustrated in language and varying interpretations intensifies resistance to change and prohibits the advancement of shared mental models and values (Pieterse et al., 2012). In a study conducted by Walumbwa et al. (2011), it was noted that authentic leaders assess themselves and co-workers

honestly and transparently, and accept responsibility to change and have accurate and realistic reviews of the contexts in which they work.

Moreover, in the health ecosystem, diverse organisational actors comprise patients, relatives, health professionals and service providers, all with differing values, interests and cultures, and these variables have the potential for conflict (Trinder et al., 2010). The politics of change as explained by Ball (2012) is linked to micro-politics and conflict. Likewise, if leaders are perceived as someone exerting their will and power, over the will of powerless people, then conflict arises (Mills, 2003). Power over people suggest dominance or control (Smeed et al., 2009) and is associated with the authoritarian leadership style. Thus, when the authentic leader attempts to facilitate change and innovation, conflicts that were previously concealed begin to surface (Ball, 2012). As authentic leaders demonstrate understanding of their strengths and development needs, they become aware of the context, the relationships, the systems and processes they need to lead (Avolio et al., 2009).

Likewise, Diddams (2012) explained that self-awareness is vital in authentic leadership, as these leaders influence motivate and inspire co-workers. When managing conflict, authentic leaders dynamically pursue input, and non-defensively consider the views of others, as they collect and comprehend self-relevant information (Diddams et al., 2012). Embracing this self-critical and introspective attitude enables leadership growth, development, humility and self-awareness. According to Schwab (2018), to achieve this shift in paradigm, what is essential are leaders who are emotionally intelligent, exemplary and create an ethical organisational environment in which co-workers perform with integrity. This leadership transformation approach is to coach, rather than the stereotyped command; the authentic leader is driven by empathy, not ego, and a humane leadership is necessary in this 4IR digital revolution. Gardner et al. (2005) explained that emotionally intelligent leadership as leaders, who have self-awareness is crucial for effective leadership.

The technique practised by authentic leaders is mindfulness, which is described by Scharmer (2016, p.141) "as the ability to attend to one's experiences, while also paying attention to one's attention". Scharmer (2016) further explains that mindfulness requires a shift in awareness to a higher level of seeing oneself from the whole. Using this mindfulness technique aligns the authentic leader's choices to deeper intentions and connects with emerging possibilities becoming reality (WEF, 2016). Likewise, Chopra (2011) described that an awareness of emotions and its effect on others, has consequences on leadership development. When leaders recognise the emotions they experience, then they are able to accurately engage in self-assessment of the emotion, with enhanced self-control and self-management (Gardner et al., 2005). A concept in authentic leadership theory which Avolio and Luthans (2006) embraced, is balanced processing, in which leaders examine their feelings through critical analysis and are also considerate of other perspectives. Another technique which Gardner et al.

(2005) noted, is reflection and self-examination that authentic leaders employ to become aware of their principal values, self-identity, intentions and goals.

Equally, Scharmer (2007, p. 52) in Theory U, provides a framework, to direct leaders to function from "deep within, so that they learn from the future as it emerges", instead of depending on past experiences. Theory U inspires leaders to be freed of old paradigms, previous habits, perceptions of knowing and to release these stereotypes. As leaders release past experiences, unclutter their minds and hearts, they become open to new possibilities as they co-create with employees. These Theory U techniques create mental and emotional space, as authentic leaders become conscious of their emotions, and the effect it has on others; this acknowledgment enables decision-making and restricts impulsive behaviours (Gardner et al., 2005).

Thus, this expansion in consciousness allows for mental and emotional shifts, for example, from ignorance to curiosity, greed to compassion and fear to courage (Scharmer, 2016). Theory U also accesses the spiritual nature of human beings and examines the mysterious questions of *who am I* and *what is my work* and provides a framework for answering these questions. Another spiritual dimension of authenticity is when Chopra (2011) described a leader as" representing the soul of group consciousness". Group consciousness as referred to by Chopra (2011) is when the "leader represents the yearnings, the aspirations and the deepest desires of the group", thus the reference to the soul. Chopra (2011) uses the mnemonic *LEADER* in his leadership framework as each letter represents a different aspect of being an effective leader. The mnemonic *LEADER* Chopra (2011) refers to uses is as follows:

L *LOOK and LISTEN.* Reference is made to integrated looking and listening with the physical eyes and ears and also using the mind and heart to look and listen. The mind has the ability to analyze the facts, while the heart assesses the emotional aspects.

Visioning is another leadership characteristic Chopra (2011) refers to as this process becomes the soul-inspiring authentic representation of the facts. By creating a vision, leaders describe what can make a difference in our lives.

E – EMOTIONAL BONDING. Leaders who practise emotional intelligence remain content with their emotions and are able to understand the emotions of others. Through this emotional stability, leaders achieve interpersonal relationship which nurtures emotional bonding. When people are emotionally bonded, their interpersonal relationships are considerably more effective (Chopra 2011).

A – AWARENES.S Chopra (2011) denotes leaders being aware of and identifying needs as associated to seven levels hierarchy of needs evolved from "safety, survival, belonging, self- esteem, creative expression to engaged consciousness and success".

D – DOING. This signifies being "action-oriented", being a role model for action, taking calculated risks and asking for feedback from co-workers which are other characteristics of the soul of leadership, as explained by Chopra (2011).

E – EMPOWER YOURSELF and OTHERS. This is done by recognising their strengths. According to Chopra (2011, p. 115), the Gallup research states that "if you don't notice co-workers' strength, they disengage". When leaders "criticize co-workers, their disengagement increases by twenty percent. Ignoring them, disengagement increases by forty five percent, however when you acknowledge a single strength, disengagement falls to less than one percent".

R – RESPONSIBILITY. Chopra (2011) explained that leaders who take the initiative, take risks and maintain good, stable physical, mental, social, emotional and spiritual health. When leaders take responsibility for their evolution and the evolution of others, their level of consciousness expands and accessing their intuitive power becomes a natural process.

*S – SYNCHRONICITY. L*eading from the soul implies that the leader relies on intuition and inner messages to act with benevolence. Chopra (2011) indicated that synchronicity is when universal intelligence supports the leader's vision by creating meaningful coincidences. As the leaders' consciousness expands, they become attentive to the present, they encourage unity, inspire others, reframe challenges as opportunities, instil hope and they begin to regard these coincidences as normal.

Chopra (2011) also makes the distinction between inspiring; that is sourced from the spirit whereas motivating is a mental activity and does not last. Leaders inspire co- workers in times of adversity, uncertainty, or chaos as they look at these situations as opportunities to co-creative the future. Chopra's (2011) leadership framework provides insight, perspective, and experience, and shows how one perceives and utilizes these techniques to expand consciousness, lead from the soul and become effective leaders.

Thus, effective leadership behaviour or the daily execution of tasks is the rationale for leadership practice. Leadership practice, according to Harris et al. (2007), refers to specific occurrences of leadership that reveal the interactions in an actual place and time. Brecken (2004) explained that by creating a captivating vision and getting co-workers to share and support in achieving that vision, is a *core element* of authentic leadership. Nanus (1995) noted that to inspire the spirit and energy of

visioning, a powerful organisational dynamic occurs toward excellence and success. Authentic leadership goes beyond the physical environment and embraces the inner nature of leaders. Scharmer (2009) noted that to understand why the leader leads in the way he or she does, the inner state of the leader must be examined. Another technique to become authentic integral leaders is Chibber's (2010) Mahavakya theory of leadership. Mahavakya translates as eternal truths articulated in the Vedas, which is ancient literature of humanity.
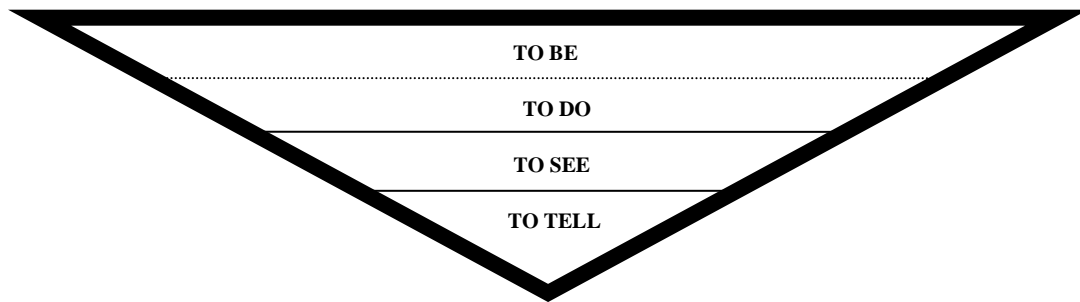
Figure 51: Mahavakya Leadership Process (Chibber, 2010)

In Figure 51, *to be* is the largest diagrammatic representation in the leadership process illustrating the leader's character as the source of leadership. In this type of leadership, the next development process is *to do,* referring to leadership by personal example and belief in what leaders do. The functions, tools, and techniques of leadership are demonstrated in *to see* and *to tell* (Chibber, 2010). *To see* is the element which integrates the leader's awareness of context, and environmental actualities to generate information that guides decision-making (Chibber, 2010). Decision-making, according to Gülcan (2011), is an essential responsibility of leaders as the effects have a profound impact on the employees and organisational performance. Somech (2010) proposes that leaders using participative decision-making have the potential for promoting organisational effectiveness by harnessing collective wisdom to solve problems.

Authentic leaders are determined to utilize cooperative governance principles (Avolio and Gardner, 2005) and their dedication to self-transformation results in altering co-workers' thinking, feelings and their ability to make decisions. According to Drucker (2001), authenticity and effectiveness require self-development, which truly means developing enduring leadership of dedication, determination, and insightful purpose. Drucker (2001) affirmed that effectiveness can be learned and is a habit of complex practices. Highly effective people who change their habits (Covey, 1990) become authentic leaders. Covey's (1990) perspective is that behaviour is a function of our decisions; taking initiative and responsibility to change results self-confidently makes a leader proactive and effective. A technique which Covey (1990*)* describes to transform the mind and behaviour, is to keep a diary, in which a deliberate decision is made to record identified behaviours that require change. Self-

discipline, honesty and determination exercised when recording reflections in the diary on changing one's behaviour, results in accessing one's virtues and transforming character (Adair, 2009). Drawing from one's own experiences, values and strengths and aligning with one's character is the key to becoming authentic and leading effectively (Brooke Vuckovic, 2016). As authentic leaders become grounded in these self-transformation processes, they encourage development of their co-workers without the expectation of personal gain (Gardner et al., 2005). Relationships of trust between authentic leaders and co-workers, awareness of their intentions and organisational goals and remaining transparent and trustworthy in these developmental processes bring about effective team performance (Walumbwa et al., 2011). Individual awareness expands and organisational productivity is enhanced through these mentoring and coaching developmental interactions (Ladyshewsky, 2010). According to Lloyd and Walker (2011), authentic leadership is values-driven and relationship-centred consequently, as the authentic leader demonstrates behavioural integrity (Leroy et al., 2012) and the well-being of the organisation is upheld. Furthermore Leroy et al., (2012) described authentic leader's behavioural integrity as delivering on promises, and aligning words and deeds. Another emergent transformation technique is Sri Sathya Sai Baba's Mahavakya on Leadership by Chibber (2010), which refers to authentic leaders as practising purity and harmony of thoughts, words and deeds.
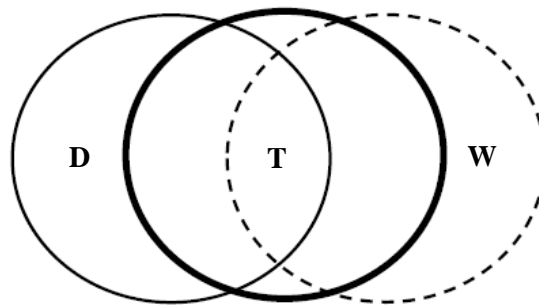
Figure 52: Trustworthy Person Harmony of Thoughts, Words and Deeds (Chibber, 2010)

In Figure 52, the representation of harmony in thoughts, words and deeds results in trustworthy persons. Trustworthy leaders are self-disciplined and self-reliant, thereby resonating trust among co-workers because of their transparency, sincerity and selflessness (Drucker 2001). In addition, this attribute of selflessness is a core characteristic of exceptional leaders and is developed through courage, willpower and initiative. Likewise, the authentic leader's virtue of selflessness is associated with sacrifice to benefit others. According to Sri Sathya Sai Baba's Mahavakya on Leadership by Chibber (2010), reference is also made to the *Universal Inner Structure of Good Leaders.*
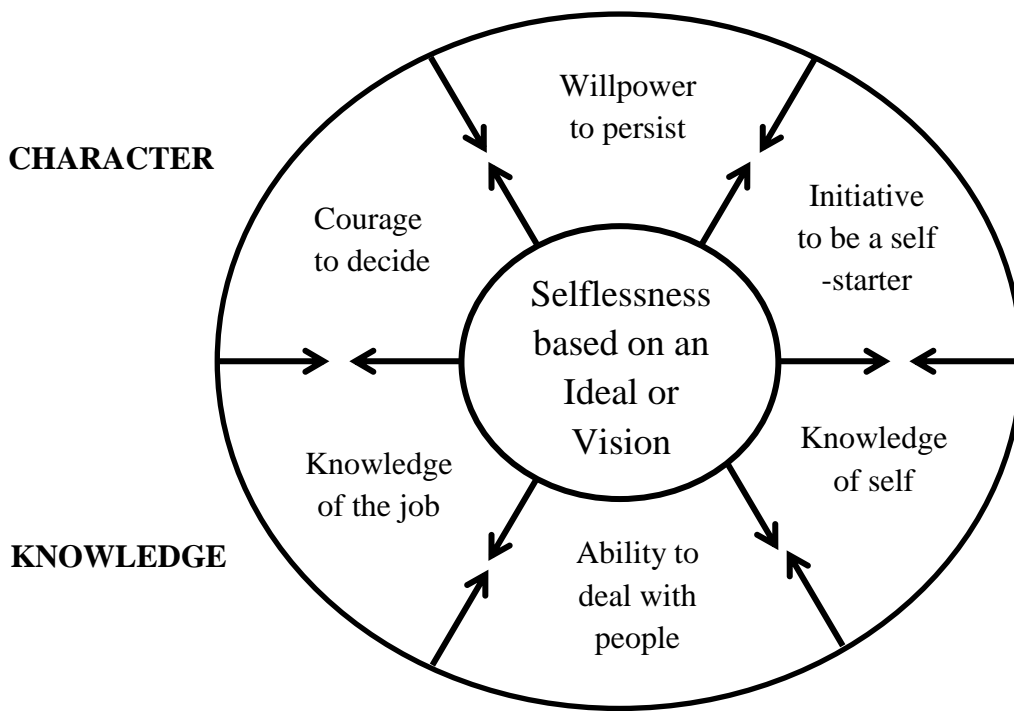
Figure 53: Universal Inner Structure of Good Leaders (Chibber, 2010)

Committed strength and balance in the universal inner structure of good leaders as described in Figure 53, according to Sri Sathya Sai Baba, determines the leader's effectiveness (Chibber 2010). This universal inner structure of good leaders also refers to the fundamental virtue of selflessness as faith in conscience, an ideal or vision. When the leader deepens his or her faith, then their self-confidence, self-satisfaction, self-sacrifice and self-realisation develops (Chibber 2010).

The upper section of the diagrammatic representation in Figure 53 of the Universal Inner Structure of good leaders is *character*. Character comprising leadership abilities embodies *willpower to persist*, *initiative to be a self-starter* and *courage to decide*. The lower section of this diagram represents *knowledge,* in which *knowledge of self, ability to deal with people* and *knowledge of the job* are fundamental skills for effective leadership (Chibber 2010). Selflessness, according to Gardner et al. (2005), as a perspective, is also the source of all that is noble in a human being.

From my interaction with noble people, among others my spiritual guide Sri Sathya Sai Baba, the former clinical head of medicine at Greys hospital, and the president of Chatsworth Hospice stand out as selfless, noble people. I experienced their ability to comfort and relieve the pain and suffering of others through their deep compassion, respect for humanity and professional expertise. Chibber (2013) refers to authentic leaders practising the five most essential human values as faith in God or conscience, truth, right conduct, equanimity, love and non-injury.

Techniques like silencing the mind (O'Brien, 2014), emotional balance (Chopra, 2011), mindfulness (Scharmer, 2016), practising gratitude (Zohar, 2017), creating collaborative relationships and awareness of interconnectedness and unity (Wright, 2014), provide expansion of consciousness and develop one's intuition. Gardner et al. (2005) found that authentic leadership is attuned with the Mahavakya Theory as it is grounded in ethics and values. Illies et al. (2005) also view authentic leaders as being deeply aware of their values, beliefs and demonstrate self-confidence, genuine, reliable communication and trustworthiness.

Avolio's (2013) view is that authentic leadership developmental programmes pursue, encourage and stimulate authentic leadership behaviours through self-awareness and self-regulation. Furthermore, the inward focus, self-examination self-control and reflection practices are techniques which authentic leaders use to advance their development (Gardner et al., 2011).

Literature surveys on authentic leadership have varying perspectives; however, in all of these perspectives, there are common essential characteristics that relate to the self as core of the leader, which embrace ethical morals, fundamental universal values, self-awareness, self-regulation, reflection and the leader's character (Gardner et al., 2011). Respectful leadership as described by Van Quaquebeke and Eckloff (2010), is when authentic leaders treat co-workers with consideration and courtesy. This behavioural integrity of authentic leaders nurtures strong working relationships and the achievement of organisational goals (Leroy et al., 2012).

In addition, Caldwell (2010) confirms that authentic leaders understand the importance of and practise the leadership principle that acknowledges people as primary focus in creating relationships with others. Moreover, leadership is a continuous engagement with others, as leaders work towards achieving the common task, work as a team and respect and develop its individual members (Adair, 2009). These authentic leadership qualities are also confirmed by Begley (2001); for instance, he described authentic leadership as a representation of "professionally effective, ethically sound, and consciously reflective practices" functioning on a continuum that is knowledge-based, values - informed, and skilfully executed.

7.6 CONCLUSION

In this chapter, distinguishing between leaders and managers, theories on leadership, rationale for choosing authentic integral leadership in this study, critique of authentic leadership theory, authentic integral leadership in organisational system dynamics and emergent techniques to become authentic integral leaders, have been explored.

As authentic leaders effect mindfulness, systemic thinking, engagement, interconnected consciousness, spiritual and emotional intelligence, they initiate personal, organisational and societal unity in the ecosystem (Scharmer, 2016). Moreover, the discovery by Singer (1995) on neural processes in the brain, detected that brain wave interconnections and unifying rational, emotional, and spiritual experiences result in unitized thinking. Likewise, in Scharmer's (2016) epistemological view, the authentic leader's shift in consciousness from ego to eco creates social change and the potential to reinvent organisations by being catalysts for organisational innovation. Emmons (1999) affirms leaders who exhibit consciousness proficiency aimed at expanded awareness of wholeness have advanced spiritual intelligence.

Behaviour, for instance, humility, compassion, gratitude, and wisdom (Emmons, 1999), is reflective of mature spiritual intelligence and empowers the leader to cope effortlessly with and resolve issues successfully. The proliferating pace of change in this 4IR necessitates integral leadership behaviour in which authenticity (Gardner et al., 2011), agility, flexibility, adaptability and emotionally and spiritually balanced leaders inspire (Senge, 2016) co- workers to reach their potential. Technical, economic, financial and social complexity will continue to increase thus ethical and moral integrity (Northouse, 2017) of the leader's consciousness and inner intentions will provide clear guidance to leadership practice (Robertson, 2014)**.**

As researcher, I have become aware that beliefs or assumptions not validated can create a cascade of effects and different concerns for leaders. Thus, it is imperative to clarify assumptions and beliefs, to introspect and examine our worldviews to assess accuracy. Another insight from this exploration on becoming authentic integral leaders, is the awareness of integral, modern, postmodern and traditional worldviews comprising values and universal beliefs which determine leadership style. Exploring worldviews through feedback, becoming self-aware of behaviours and the effects behaviour has on others, are some ways of reflecting on and changing beliefs.

Further insights gained are that change involves healthy conflict, as integral leaders create enabling environments for others to resolve conflict, influence the way they think, act and express their values and authenticity. Also, values as described by Collins (2014) are perceptual filters our minds use to decide what is important in any given situation, whereas universal beliefs are referred to as all-encompassing, established beliefs about self, others and systems.

Leadership literature shows that evolution from being effective leaders to integral leaders and becoming awakened leaders, is a personal individual seeker's journey toward truth (Elworthy, 2014). Awakened leadership is a gateway to direct experience through accessing our deeper levels of consciousness and exploring presencing that enables us to recognize the potential of Being who we

really are (Shelton, 2017). Emergent techniques which were described in section 7.5, enable the integral leader to disengage the ego mechanism that blocks the experience of awakening.
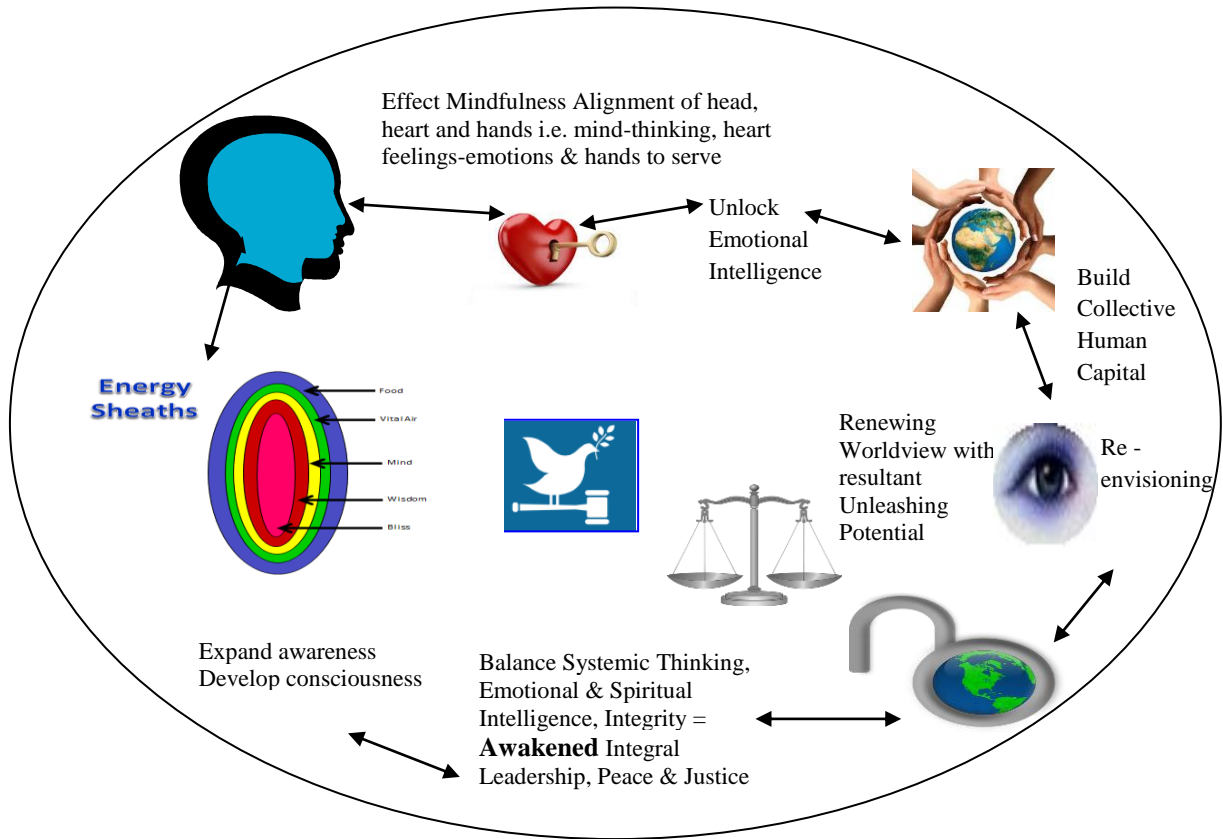
Figure 54: Emergent Awakened Integral Leadership Model

Developing this emergent awakened integral leadership model, in Figure 54, reflects other insights gained from the dynamic behavioural, psychoemotional and conscious interconnected transformative processes, and which can be considered or further advanced to become authentic awakened integral leaders. Emerging leadership worldviews and authentic awakened integral leadership in organisational system dynamics involves awakened integral leaders whose quest for knowing oneself focuses on how to make a difference, facilitate appropriate change, provide assistance for development and display behaviour reflective of contentment, integration, personalization and transcendence (Collins, 2014).

Reflective conversations and engaging with my research mentor and the FG research participants have endorsed my understanding and altered my views of the leadership styles in the KZN DOH. I have become sensitized to the notion of self-awareness and self–mastery, as my heightened perception of authentic awakened integral leadership, emotional and spiritual intelligence, mindfulness and

collaborative relationships of interconnectedness and unity, have generated in-depth knowledge and understanding of my leadership practice. Other insights were that emergent leadership evolution has, for example, awakened integral leaders to enable the development of integral health care systems. Additionally, the integral health care model, according to Schlitz (2008), encompasses wholistic living, healing inclusive of physical, emotional, spiritual, and ecological, and curing, not just the reduction of symptoms. The importance of science and technology in the 4IR (Schwab, 2016) and the inclusion of personal and interpersonal multidisciplinary teams in the integral health model, humanize the health care encounter and the "heart and soul of healing can be reinstated" (Schlitz, 2008, p. 1).

Engaging in FGD and interrogating the CLD codesigned in Figure 50 on authentic leaders' psychosocial feedback, influenced the generation and analysis of these data variables. As a result, the application of these systemic principles and the emergent awakened integral leadership model designed in Figure 54, can enable health policy and decision-makers to advance the KZN health organisation and services into an integrated health system.

In the next chapter, the discovery of and recognition that awakened leadership, which is beyond self-mastery, is described as trusting this inner transformation process: that we author and control our own reality. Also, the interconnectedness of awakened integral leaders enacting transformation and governance in KZN tertiary hospitals, will be explored

CHAPTER 8

AWAKENED INTEGRAL LEADERS ENACTING TRANSFORMATION AND GOVERNANCE IN KZN TERTIARY HOSPITALS

8.1 INTRODUCTION

The current tertiary hospitals leadership context is located in progressively causal complex (Halfon et al., 2014), uncertain, turbulent and dynamic (Oosthuizen, 2016) health ecosystems with numerous, challenging realities, established on diverse values priorities and sub-systems (Küpers, 2007). According to Mitroff (2004), Quinn (2004) and Senge et al. (2001), external and internal perspectives of the health industry are increasingly fragmented, ambiguous, and continuously changing, thus necessitating reform of conservative concepts of leadership. Particularly, systemic elements, for instance, the upsurge of organisational crises, cumulative demoralization (Küpers, 2007), and corporate irregularities, demand management practitioners and health leaders to reinvent themselves, to meaningfully address these challenges.

An emergent awareness of environmental calamities, social degradation, ethical dilemmas and the intensified uneasiness and inadequacies are prompting an inordinate emphasis on the search for meaning, and the aspiration for alternative leadership is becoming essential (Mitroff, 2004; Quinn, 2004; Senge et al., 2001). The existing world order resembling the machine model, dominated by organisational units, in which importance on organisational structure, organisational disunions, administrative rules, occupational functions and management roles (Geerlof, 2014; Wheatley, 2006), requires creative ways to deal with the systemic complexities, and a shift from the paradigm of order, control and predictability. Diverse internal and meta-organisational circumstances, change processes and cumulative systemic burdens, result in new demands, as well as additional perplexing difficulties on leaders, followers and leadership, that require revised roles, adaptive responsibilities and systems (Küpers, 2007).

In this chapter, new possibilities for integration, cooperation (Pillay, 2014), whole systems thinking, participative consciousness and epistemic learning (Sterling, 2005), ethical enactment (Hardman, 2016) of awakened leadership (Shelton, 2017) and collaboratively negotiating to create and enact integral health teams (Greenfield, 2007), will be deliberated.

8.2 AWAKENED LEADERS ENACTING WHOLE SYSTEMS THINKING, TRANSFORMATION AND GOVERNANCE IN TERTIARY HOSPITALS

Current perceptions of the health system are increasingly more fragmented, uncertain, and constantly changing. Thus, employees are demanding better quality of life in the workplace (Davidson, 1998) and transformation of traditional models of leadership (Mitroff, 2004). The emerging challenge is to understand why the health ecosystem as a whole, and health science education particularly in tertiary hospitals, are limited in their ability to make constructive consistent transformation (Sterling, 2005) to the service delivery model and quality of life of citizens.

The prevailing worldview, according to Pillay (2014), is that of controlled materialism, based on a western paradigm which results in a feudal and an industrial mindset. Literature reviews show that escalating health costs and out-of-control healthcare inflation (Gilson, 2011) creates systemic delays to access healthcare, and the concomitant failure in health outcomes ultimately resulting from this controlled materialist worldview. Feudal leadership is mainly present in machine organisations (Lunenburg, 2012). This machine organisation metaphor is involved in mass production, mass service, bureaucracies, autocratic leadership, and a dominant need for control. A feudal type of leadership is manifested in government departments and public sector organisations, in which top–down decision-making, regulating the work of operating core staff by imposing rules, regulations, and standards, is evident (Lunenburg, 2012). An industrial mindset paradigm, according to Scharmer (2007), is represented by traditional behaviours of the industrial age model, such as efficiency, infinite growth, and material consumption. Thus, controlled materialism, a feudal and or an industrial mindset, inter-relates with this machine metaphor which has implications for the design of organisation, leadership style, and organisational processes. Moreover, these systemic variables have repercussions on governance, the organisational culture, decision-making and communication flows within this type of managed system, causing disequilibrium in dynamic systemic behaviour. Scharmer (2007) in his Theory U model, proposes the shift from this materialistic worldview, reductionist mindset to integrating systemic thinking, emotion and will, thereby stimulating open communication, collective choices, decision-making and collective actions. Likewise, as levels of consciousness paradigm increase towards an integrated mindset and expanded worldview, people's behaviours re-flect more balanced choices, wherein collective universal needs and rights become equally important to those of the individual. Thus, leaders foster a greater willingness to engage in transformation at an individual and organisational level (Scharmer, 2016).

In this study, an opportunity is provided to re-examine the leadership assumptions from the fundamental perspective of the importance of consciousness (Pillay, 2014) and the system dynamics

approach (Goleman, 2014). This shift in consciousness and the SD approach refers to the connections and synergies between social and emotional learning and systems thinking. In this study, I contextualize the nature of an emerging postmodern systems worldview, with the resultant paradigm change, through deep reflection on whole systems. I explore the deconstruction of assumptions. Quinn (2004) in his research on organisations in which building the bridge as you walk on it, implied that awakened integral leaders involve staff in crafting ground-breaking approaches to initiate change with confidence; the unit nursing manager, when asked what contributed to the successful performances and innovative practices, stated:

> It is not what they do. Each leader is different. Each one has her own unique approach.
> It is who they are that matters.

From the example above, in the enactment of awakened integral leadership, it is recognised that based on the interconnectedness of the leader's integrity, trust, work performance, job satisfaction, the team and organisational integrity, consistently resonate. In this study, the FG had identified that organisational variables, like the demanding realities in the KZN tertiary hospitals within a turbulent, complex, and dynamic health ecosystem, will require *awakened integral leaders* to foster *organisational relations and psychosocial cohesion.*

Consequently, the individual leader's integrity results in systemic dynamics, such as the consequences of trust, job satisfaction, quality work performance, and organisational integrity. Palanski and Yammarino (2009) describe a leader's integrity as inclusiveness**,** unity, as leaders demonstrating consistency between words and actions; as consistent behaviour in adversity; as being true to oneself, and integrity as morality or ethics, including their characteristics such as honesty, trustworthiness, justice and compassion. Thus, these systemic relational interconnections of the individual leader's integrity reverberate with the group and organisational integrity. According to Siegel (2010), there is a strong correlation between the leader's inner state, which influences the various elements in the health ecosystems structure and functions.

To postulate then the potential development of a new organisational model, emerging as self-organizing organisations and a new kind of leadership becomes possible. According to Scharmer (2005, p. 29), the need to engage in reflective thinking and profound shifts in our understanding of "who we are; and how we should perform as individuals, as leaders, as organisations and communities, in an increasingly complex inter-connected" global humanity, is growing. Equally, this emergence of *systematic consciousness* wherein all faculties are developed, relates to what Senge et al. (2008) and Wilber (2000) refer to as *consciousness development or inner work.* Similarly, as individuals develop their deeper stages of consciousness, they become totally mindful of their own unique nature and can access, integrate, and utilize all their faculties, by integrally engaging their

body, heart, mind and spirit to *enact purposeful experiential learning* that leads to *meaningful work* (Senge et al., 2004; Wilber, 2007).

Engaging in self-enquiry (Katie, 2014) and developing one's consciousness, unfolds the individual's authenticity, moral expansion and paradigmatic shift from *me or egocentric*, to *us,* referring to *ethnocentric*, to *all of us,* thus becoming grounded in *worldcentric* (Wilber, 1997) mental models. In discovering one's inner Source, *awakened leaders enact* this integral leadership approach, which can be applied appropriately to diverse contexts (Wilber 2007). To extend this awakened integral leadership practice, an organisational appraisal in which observable, trustworthy, qualitative data, informs leaders, of the health care decision-making processes, the organisational culture and climate, can be enacted. These evaluations may generalize or oversimplify multifaceted complex health care decisions, as these analyses frequently overlook significant health consequences, contextual elements, relationships or other relevant adapting variables.

Awakened integral leaders have a quest to understand these variables, which are essential in turbulent, multi-objective, multi-stakeholder, complex health ecosystem. Possible opportunity available to awakened integral leaders would be to develop a new paradigm grounded on the systemic variables of perspective and context (Lessard, 2007). According to Geerlof and van Beckhoven (2016), by enacting complexity theory, a transformational epistemology for leadership in self-organizing organisations is realised. Since this method of enquiry offers a new dialogical relational framework for deeper understanding of the preferred leadership presence and context within which leadership is embedded. By enacting this transformational system dynamics approach, awakened leaders change their linear, deterministic and reductionist justifications. Scharmer (2007) described the characteristics of awakened leaders as, pursuing the truth, seeking to realise the deeper meaning of who am I, and deconstructing concepts, mental models, beliefs and societal expectations. Also, Pillay's (2014) narrative of awakened leaders are to engage in self-observation, self -awareness and experience non-dual perception, by means of witnessing shifts in consciousness from *me to awareness/us consciousness.* This *me* consciousness is symbolized as a fragmented part of the Whole or *us* consciousness. An awakened leader's consciousness is rooted in the fundamental source which is the Whole, is non-linear, is Being, Presence and is evoked by self-awareness, self- reflection and self-regulation (Wilber, 2007). Examining the notion of the Whole from an ontological view of non-duality, Pillay (2016) describes non-duality as non-separation from the Whole, which can be experienced by shifting from thought/me, to awareness/us. Preceding thoughts, non-duality or the Whole, exist as an element of Being and of Presence. Downloading as referred to by Scharmer (2007), is listening to and paying attention to past thoughts, behaviours and experiences, which conceal the individual's ability to shift into presencing and non-duality. Thus, an individual awakened integral leader's transformation involves suspending, redirecting and letting go of the past, by choosing to

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open our hearts, minds and will and focus on the present, with the intention of accessing and connecting to our Whole non-dual space and Being who we truly are.

Similarly, an awakened leader's consciousness enacting in dynamic systems, presents a model of circular understanding which contains recursive causal processes inter-related to the Whole. The effect within the complex health ecosystem that emerges in these transformational recursive feedback loops are dynamic (Geerlof & van Beckhoven, 2016). Literature surveys (Schlitz, 2008) support that view that consciousness and integral health care are reflected in synergistic interconnections between patients and awakened clinicians, in which each are comprised of physical, psychological, social, cultural, emotional, biological, transpersonal and spiritual dimensions, interacting to create optimal integral healing environments. This system dynamics approach prevents the recognition of projected outcomes in organisational transformation; instead, this approach of recursive feedback loops creates the possibility of wholistic healing ecosystems, transforming how decisions are made and how new health policy procedures are implemented. According to Bodhanya (2005), recursive feedback loops in systems function in nested hierarchies and each level of recursion demonstrates emergent outcomes.

Complexity theory also provides a valuable theoretical framework for wholistic appraisal of health care systems. As leaders engage in complexity thinking, an attentiveness to variables including uncertainty, contextual issues and various viewpoints, they encourage comprehensive societal participation, as transdisciplinarity matures (Bray et al., 2013). This type of evaluation increases a leader's accountability and epistemology based on pluralism and uncertainty. Also, new forms of community and stakeholder engagement, roles of this knowledge in decision-making processes and governance approaches, emerge. Complexity thinking similarly lays emphasis on transformations involves an all-embracing, multi-level approach to change, and highlights that future outcomes cannot be predicted because of the self-emerging systemic properties.

Another result of using this type of systemic relationship dynamic is the deepened awareness of connectivity and reflexivity thinking in health care systems evaluation. A reflexive approach permits assessors to analyze the organisational activities, and demonstrates how unbiased structures and particular elements influence the integrity and reliability of evaluations. Awakened integral leaders engaging in a reflexive approach, create the conditions in complex environments, that enable relational interactions, through which organisational behavior and strategic direction of ecosystems emerge (Russ, 2001).

Complexity theory also recognizes the consequence of context (Best, 2014). In self-organizing systems, context is intrinsic, since self-organizing systems are open and closed simultaneously and

occur on the continuous principle of constant exchange of resources, for example, the interchange of energy and information. Self-organizing systemic processes create relational interactions between diverse element energies and amidst order and disorder, thus establishing disequilibrium which is an essential condition for growth. Embedded in these self-organizing systemic processes is the capability of creating new meaning out of randomness, uncertainty and emergencies (Van Olmen et al., 2012). Thus whole systems complexity thinking and self-organizing systemic processes, demystify the traditional theory of leadership paradigm identified as the sole male dominated all-knowing, problem-solver to an awakened leader, who emerges and enables compassionate, complex, and adaptive behaviour (Mandala, 2008). In pursuit of self-mastery, awakened integral leaders develop and consistently practise techniques, in which self-organizing processes, functional attributes, like self-management, self-creation, self-maintenance, self-regulation and self- reflexivity, are realised.

Awakened integral leaders have the ability to embrace paradoxes, duality and diversities and to enable transforming the organisation (Elworthy, 2014) from a traditional towards a self-organizing organisation (Morecroft, 2015). These leaders become creators of a safe learning environment, in which employees are perceived as sense-makers, dynamic, knowledgeable and experienced actors (Berger & Johnston, 2015). Awakened integral leaders can transform instantaneously into strong negotiators, and their leadership presence is changeable and adaptive, specifically when facilitating in complex environments and in co-creating self-organizing organisations.

In complex adaptive systems (CAS), the awakened integral leader's courage, interpersonal skills and dynamic interactions goes beyond conventional, extensively accepted behaviours and reductionist approaches to health care. Innovative paradigms that integrate dynamic and emergent world views of health ecosystems, wherein CAS are open, and actors collaborate and exchange information with all stakeholders, beyond the system boundaries, emerge (Lessard, 2007). These interactions among the health ecosystem elements' behaviours and capacity for self-organizing enable CAS to create or transform the structures, and fulfil the changing demands of internal and external contextual dynamics (Nikitina, 2017).

Other fluctuations in the health ecosystem dynamics are the changing patterns of governance, which according to Hardman (2016), imply that there are shifts in the normative and structual governance paradigms. Normative or good governance indicates trust, collaboration, shared responsibility and participation, whereas structural governance specifies the changing role of government and civil society (Hardman, 2016). The World Health Organisation Report (2008, p.3) defines governance as:
> Providing policy guidance to the whole health system; ensuring coordination of actors and regulation of different functions, levels and actors in the system; ensuring an optimal allocation of resources, and maintaining accountability towards all stakeholders.

Government is no longer considered the sole actor in governance, or determining health policy, and in delivering health services. Government's power has been destabilized, by interactional relations at multiple levels in the health ecosystem. Bilateral, multinational and transactional agreements with donors, international organisations and the private sector, influence SA's macro-economic policies of deregulation and privatisation, which has condensed the exclusive role of government in the provision of health services (South African Health Review, 2011).

Diverse actors, including market and civil society actors, the decentralisation processes, and devolving responsibility for health services delivery to local government and non-government structures, have influenced enacting governance (RSA Planning Commision, 2011). The central role of governmental leaders in directing the health system lies in their delegated authority, to deliver services on behalf of its citizens. Moreover, citizens are entitled to public health service delivery as part of the social contract between government and its citizens (Van Olmen et al., 2012).

Thus, the government performs a mediating and coordinating role among all stakeholders, to promote equity, efficiency and sustainability of the health system deliverables (Petronytė et al., 2016). An example of enacting integral governance is the public private partnership (PPP) agreement, at the Inkosi Albert Luthuli Central Hospital in KwaZulu-Natal. In this PPP context, the health service delivery model involves actors from the private health sector, government, civil society and international service providers. Core clinical functions are provided by public service employees, and non-core functions, for example, procuring, maintaining and servicing medical equipment, rendering ICT and catering are outsourced to the private sector. In the current competitive world, and political, knowledge and technological economic recession, health systems are under significant pressure to respond to the rising health care demands, with no additional resources or funding.

Consequently, complex adaptive health systems need awakened integral leaders, who are focused on the macro environment, who understand these systemic effects and can facilitate policy development processes, inclusive of all actors (Thomas, 2004). By using the system dynamics approach awakened integral leaders create opportunities for innovation, for shaping new health service models and co-designing strategies in which a self-organizing organisation emerges (Davidson, 1998).

8.2.1 Enacting Integration, Cooperation, Participative Consciousness and Epistemic Learning in Conscious Organisations

The awakened integral leader's ability to practise complexity thinking, to develop deep insight in understanding the contextual elements, uncertainty, diverse perspectives, connectivity and reflexivity (Lessard, 2007) of dynamic systemic relationships, results in an *all-inclusive transdisciplinary*

paradigm (Choi & Pak, 2006). System thinking, system dynamics modelling techniques and understanding self-organizing emergence (Scharmer, 2007), are contributing to healthcare leaders facilitating new integrated models of healthcare, redesigning and improving clinical service protocols, evaluating budget and personnel adjustments, envisioning future health demands more accurately, and estimating which and how services will be accessed by patients (Mandala, 2008). These awakened integral leaders facilitate organisational transformation, which consists of a comprehensive, *multi-level methodology of participation* (Bray et al., 2013), and emphasises *the awareness of relational connectivity, integration, reflexivity and self-emerging systemic properties* (Lessard, 2007).

Moreover, collaborative partnerships between service providers, public health officials, community representatives and transdisciplinary teams provide opportunities to apply these systemic techniques, to deliver integrated, responsive health services, enhance systemic performance, utilize resources efficiently and mitigate risks (Forum, 2016). Examples of collaborative partnerships are the sustainable projects being conducted at the Greys Tertiary Hospital in KZN. Also, my experience in facilitating the strategic planning processes at this hospital had been enabled by using principles of stakeholder analysis, the system dynamics approach, and feedback techniques, with the resultant integration of service components, an improved networking and interrelation mutual reliance and commitment to performance and accountability for self-improvement.

As healthcare leaders develop their skills in using these systemic techniques, their ability to recognize how implementing change impacts the health ecosystem, as a consequence of fluctuating service demand, and the best possible budget and HR capacity balance, emerge. These integral systemic processes provide a shift in the lens, through which inter-organisational relationships, learning from emergence, acquiring knowledge of complexity and becoming mindful of the needs of service users results (Health Services Research Network, 2014).

According to Scharmer (2016), as awakened leaders consistently practise mindfulness, engagement, and participative consciousness, spiritual and emotional intelligence and unitized thinking (Singer &Gray, 1995), they resonate personal, organisational and societal harmony in the ecosystem. This epistemological view (Scharmer, 2016) of the awakened leader's (Shelton, 2017) shift in consciousness allows for clarity of context, that is both internal and external, personal and organisational, with focused attention to detail, and reflective observation on experiences as learning opportunities, becoming grounded in a transformed work culture (Davidson, 1998).
In Senge, et al (2005, p. 4) Mahatma Gandhi states:

"You must be the change you wish to see in the world".

Awakened leadership is an integral approach, which connects the leader's awareness to integrate the appropriate leadership style, suitable to the co-workers and the context (Marques, 2007). By utilising any of the emergent techniques as discussed in the previous chapter, on becoming authentic awakened integral leaders, the leader's self-awareness, integrity, courage, self-acceptance, compassion and being emotionally attuned to the self, the stakeholders, and the environment (Singleton, 2015), result in the possibility of a conscious organisation emerging (Davidson, 1998). The ability of an awakened leader to integrally observe reality, to create resilient organisational structures and to adapt to constantly changing conditions, create opportunities for collaboration (Forum, 2016). Yet the following challenges to awakened leadership exist: moving beyond fear in a macro, universal worldview of awakening to the future of human inner work and non-dual consciousness, the threat of responding to increasing complexity, volatility, disruptive change, uncertainty and the unknown future. Apprehension also exists toward impacts of increasing diversity in society and the workplace, the effect of technological advances, artificial intelligence, the age of robots, and of the moral and ethical dilemmas these innovations generate (Goldman et al., 2016). Another challenge to awakened leadership is the inner work of shifting or *absencing* (Scharmer, 2007) the rigid ego self-identity, to suspend habits of judgments, deconstruct mental and social paradigms and create space to unclutter their hearts as well as minds and the will to release their own biases, blind spots and privilege. Being stuck in the us-and-them attitude, entrenched in old ways of control and manipulating, intimidation to be transparent or vulnerable to hearing from the diverse voices of their people honestly expressing themselves, reflecting on how inclusive they are in their personal, professional or organisational lives, in decisions they make and how they react against their mental models and thinking patterns of the past, are challenging to awakened leadership (Senge, 2006). Likewise, the metaphor I used of an iceberg in Chapter Four and the illustration in Figure 21in this study, demonstrates that beneath the visible level of events and crises, there are underlying leadership structures, mental models, and sources which are responsible for creating these past thoughts, behaviours and experiences. If these challenges to awakened leadership are ignored, then the human system behaviour will remain locked into re-enacting the same old leadership systemic patterns with resultant disequilibrium in the ecosystem.

Scharmer (2007) in Theory U describes that by accessing the Source, the awakened integral leader's consciousness leads to embodying integration, cooperation and enacting participative consciousness. This consciousness reflects the shift from the past behaviours and focuses from thought/me to nondual awareness/ us and a deep sense which emulates the Whole and creates opportunities for consciousness organisations emerging.

These opportunities to create reciprocally positive integration in the work environment (Buehler, 2016) and balance the organisation's needs for high performing, inspired workforce and individual

needs for wellbeing, fulfilment and meaning in work becomes possible in conscious learning organisations (Davidson, 1998). Leaders being a role model are the most effective way to build trust and to inspire people. In Stander, et al (2015, p. 9) Albert Einstein described leaders as:

"Setting an example is not the main means of influencing another; it is the only means".

Enacting awakened integral leadership, energises multiple disciplinary teams and inspires meaningful work (Wise, 2016), integration, cooperation (Nikitina &Lapiņa, 2017), participative consciousness, quality performance and safety, thereby enabling transformation and innovation in complex health care organisations (Volckmann, 2014). The *paradigmatic shift in team approaches* resulting in emerging *conscious organisations* are transference from multidisciplinary to interdisciplinary to transdisciplinary and multiple disciplinary teams.

A multidisciplinary team approach utilizes knowledge from diverse disciplines and remains within their boundaries, whereas interdisciplinary teams examine, combine and synchronize relations between disciplines into unified coordinated and comprehensive whole. However, *transdisciplinary teams* integrate various disciplines and contexts and transcend the customary boundaries (Choi, 2006). The intentions of multiple disciplinary approaches are to understand, explain and resolve complex pragmatic systemic disequilibrium. Similarly, multiple disciplinary approaches consist of an extensive range of disciplinary, scientific, and epistemological potential, which creates interconnections between theory and practice, and leads to solving dynamically complex problems (Todorova, 2013).

These approaches strengthen interactional relations and team cooperation, and as the individual's consciousness deepens, team engagements evolve and collective intelligence manifests. As these teams interact beyond disciplinary boundaries, their participative consciousness expands (Pillay, 2014), their skill in complexity thinking develops, their courage to adapt, to perceive the macro context and distinguish dynamic systemic processes and to recognize self-organizing emergence surfaces (Collins, 2014). In the unification of transdisciplinary teams, inclusive interactions among diverse relationships and CAS (Lessard, 2007), systemic collaborations evolve into a coherent whole partnership (McConnell, 2014) and self-organisation emerges (Scharmer, 2007).

Reflecting on my experience of participating in addressing the oncology crisis in KZN, a multidisciplinary team approach was used to resolve a common problem, the long patient waiting times and access to radiotherapy services. These delays in patients being assessed, diagnosed and treated, were caused by the high attrition of specialists from the Inkosi Albert Luthuli Central hospital and the non-functioning radiotherapy machines at Addington hospital in KZN. Even though the team represented various stakeholders, and as these were not linear processes, the diverse perceptions, of

what caused the problem, and reaching consensus, remained messy within this complex clinical system.

While monitoring progress of this team performance, an opportunity was created to modify behaviour, and an awareness of the systemic effects emerged. Feedback on performance was given, successes were recognised, challenges were acknowledged, and support mechanisms were identified. One of the challenges in this complex organisation was to avoid micromanaging and prevent the risk of oppressing the experiential learning (Goleman et al.,2013) by trusting the team participants to utilize their talent, skills and professional competencies. These interactions resulted in deeper understanding of how diverse professional abilities can complement each other in these collaborative processes (Focus Group).

According to Scharmer (2007), the awakened leader needs to be sensitive to the context, and accessing the deeper layers of personal and the team's experience. In this era of competitiveness, rapid change and the fast pace attitude, a feeling of being overwhelmed affects the morale and organisational climate (Goleman &Senge, 2014). Team member's efforts to determine a balance between effectively fulfilling their responsibilities and accepting persistent contextual constraints in a dynamic reality produces unpredictable behaviours. These systemic relational emergences raise concerns about governance and balancing quality of services delivery and the impact on professional's productivity.

Thus, other stakeholders, for example, the professional regulatory bodies, also need to understand CAS and participate in creating wholistic accountability frameworks. Similarly, an integral team approach which is dynamic and is grounded in an understanding of the constant nature of systemic change and transformation adapts to health ecosystemic complexity. This integral team approach is multidimensional and identifies that to focus exclusively on one level of the organisation, will only provide a temporary solution to these complex challenges (Wilber et al., 2005). Transdisciplinary teams inclusive of patients and clinicians in whom each participant comprises of psychological, social, cultural, biological, and transpersonal dimensions, interact in significant synergy, within the health care context thereby creating optimal healing environments (Schlitz et al., 2005). The epistemic learning among transdisciplinary teams, in conscious learning organisations, is a result of experiential knowledge relating to the degree of validation through their interactions.

According to Pillay (2014), as the team's participative consciousness deepens, learning becomes grounded in awareness and experiences. Moreover, the teams combined complex relational elements like shared values, norms, traditions, tacit rules, assumptions and language impacts on the way team members think, feel and act in the organisation, thereby determining the *organisational culture*.

Organisational climate, on the other hand, is the emotional content of the relationships and the morale of the organisation, which symbolises the ethos, spirit, feeling and tone of the organisation (Cummings et al., 2014). As awakened leaders facilitate integral team participation, emotional security, open communication and enable risk-taking, professional teams begin to develop harmony, a caring ethos and empathy with co-designed decision-making processes, emerging (Shelton, 2017).

When awakened leaders reveal their authentic behaviours, they co-create organisational cultures in which interactive engagements and consensus building processes result in trust, team unity, relational transparency and a positive organisational culture by creating the space for self-awareness, self-regulation and professional growth (Gardner et al., 2005). Team energy, optimistic attitudes and high performance teams emerge, as a result of positive organisational cultures (Walumbwa et al., 2011). Equally, as health systems and health facilities evolve and leaders understand CAS and integral governance, transdisciplinary teams learn to become more ethically responsible, deepen their conscious decision-making processes (Health Services Research Network, 2014), and are mindful of their accountability towards the population and patients they serve (Van Olmen et al., 2012).

8.3 ETHICAL ENACTMENT in POLICY DESIGN, CURRICULUM REORGANISATIONS and HUMAN RESOURCE PRACTICES

8.3.1 Ethical Enactment

As health systems transform to become conscious organisations, leaders' and transdisciplinary teams' collective integrity signifies, that by taking responsibility, holding each other accountable and engaging in consistent open communication, integral power emerges (Collins, 2014). This integral power energises high performance high morale, loyalty, dignity and nobility at work and thus, *ethical enactment* becomes the source of successful teams, organisational cohesion and resilience (Best, 2014). According to Dankwa-Mullan et al. (2010), power and influence of transformational theory and transdisciplinary approaches are central to enacting *ethical governance*. In a study conducted by Donkers (2016), based on Wilber's integral theory and spiral dynamics, awakened integral leaders develop, empower and delegate tasks in a responsible manner, and engage more in activities that facilitate deep understanding, as well as expresses empathy. These awakened integral leadership approaches reveal a strong correlation between empathy and collegiality in a people-centred environment (Schieffer & Lessem, 2016). Thus, as awakened integral leaders create emotionally secure *ethical environments*; employees' job satisfaction, morale, improved personal management of work-related stress, the overall organisational climate and an opportunity to reach full potential, emerge (Hayes, 2015).

Awakened integral leaders recognize employees as human resources who reflect a humane system (Ross, 2012). According to Zukav (2007), the human system is a frequency of energy and as individual and organisational consciousness, expands the choice to shift to high frequency energy for example expressing compassion, gratitude and trust emerges. The more these high frequency energies are permitted to traverse one's system, the more energy is experienced. Thought creates emotions that are described as energy in motion, and as individuals experience caring, joyful or creative thoughts which are regarded as high frequency emotions, the frequency in the organisational system is raised. Zukav (2007) described the quality of individual consciousness as determined by choosing one's thoughts, selecting the emotional energy one resonates, and which energies will be reinforced, thereby resulting in conscious organisations.

8.3.2 Ethical Enactment in Policy Design

Ethical enactment grows into a natural tendency in work performance, as employees become grounded in taking responsibility for their actions, in actively participating in *policy design* and contributing to collective organisational benefits. Equally, as awakened integral leaders facilitate the transdisciplinary approach in an *ethical context;* within a conscious health ecosystem, health worker's *ethical accountability* and *ethical decision-making* emerges. As the worldview of health policymakers transforms, their emphasis on organisational structure, organisational divisions, administrative rules, employee functions and management roles shift to embolden an integral transdisciplinary approach.

In this era of new social constructs in the 4IR (Oosthuizen, 2017), the fundamental state of policy maker's perceptions of the macro contextual organisational and individual complexities, uncertainties and interconnectedness, alters transference of *ethical resolve* (Hardman, 2016) and organisational climate (Van Olmen et al., 2012). Becoming aware of these perceptions, emotions, and behaviors, the awakened integral leader inspires *ethical conduct,* resulting in extraordinary performance among transdisciplinary teams (Goldman Schuyler et al., 2016). Consequently, when transdisciplinary teams engage in *ethical enactment of policy design, development and delivery,* the effect of identifying and clarifying the ethical context, experiencing and resolving ethical issues, emerges.

8.3.3 Ethical Enactment in Curriculum Re-organisation

The transdisciplinary approach to curriculum integration is boundary-less, uniting various disciplines, by organizing teaching and learning in a pragmatic context, consisting of real-world complexities, wherein meaning is constructed and emerges (Alonge et al., 2016). However, according to Alonge et al. (2016), in this 4IR, fundamental diverse approaches to teaching and learning need to be acquired. A variety of new technologies are uniting the physical, digital and biological ecospheres, impacting all disciplines, economies and industries, with artificial intelligence (Stefanelli, 2001). Even concepts

about what it means to be human are being challenged (Effoduh, 2016). Notions of using familiar theories, a narrow set of psychological assumptions and conventional approaches in planning health science curricular and teaching pedagogy, necessitate rethinking (Peters et al., 2011). Likewise, core beliefs of expert educators need to be reviewed and transformed, with the intention of creating a new paradigms of teaching and learning (Howard et al., 2009).

Recurrent disequilibrium in the health ecosystem, complex organisational and psychosocial dynamics and impact of artificial intelligence on health science education demand critical thinking and a systemic approach to health science education. Systemic learning commences with constructive dialogue among educators, health science learners and policymakers, in addition to the ability of systemic stakeholders to suspend assumptions and enter into honest collective systemic thinking (Buehler, 2016).

The use of systems thinking in health science teaching and learning creates the possibility for us to understand complex problems and generate more creative and sustainable solutions to inadequately perform health systems globally. In a study conducted by Calhoun et al. (2008, p. 3), health educators concluded that "systems thinking should be a core domain in public health curricula". Gebbie et al. (2008) determined it as a core competency of health research training. For example, systems thinking can resolve, emerging public health epidemiological factors resulting from complex system of spatio-temporal interactions at the biological, socio-behavioural and economic levels. To address these complex epidemiologic conditions like chronic diseases, infectious diseases, HIV, TB, mental health problems, obesity, nutritional imbalances, smoking, or alcohol and substance abuse, public health professionals need be trained in systems thinking to enable them to design effective interventions and maximize positive health outcomes, while minimizing unintended negative consequences. A case in point of interventions that were designed by public health professionals, using systems thinking expertise were the high-impact prevention and control programmes for polio eradication (Thompson, 2008) and smoking cessation (Levy et al., 2010). As public health professionals use their systems thinking expertise and collaborate with traditional training educators with reductionist approaches to teaching causal-effect relationships, integral training in planning and implementing public health solutions results.

Similarly, through effective changes at several sub-system interactions, improved health outcomes emerge (Frenk et al., 2010). Essentially, contemporary health practice approaches in health teaching curricula, require fundamental transformation, which becomes inclusive of multi-factorial chronic diseases experts who collaborate with numerous disciplines and sectors. According to Frenk et al. (2010), academic disciplines such as organisational management, social sciences, and institutional

analysis and systems sciences are emerging as vital domains in an integral approach to teaching and learning in health science curricula.

At the WEF (2018), emphasis on collaboration among multiple disciplines and sectors resulted in cost savings by the use of new technology-driven approaches, thereby releasing funds for other healthcare system efficiencies. Illustrations of how globally the cause of escalating morbidity through preventable chronic diseases like diabetes can be promptly and accurately diagnosed and monitored by wearing non-invasive devices that will continuously monitor vital signs, were also highlighted. This collection of patient personal data can reduce the number of medical consultations; eliminate the need for repeated blood testing, emergency room visits and hospital admissions, annually.

Another transformative teaching-learning approach, is according to Scharmer (2000), learning from the future as it emerges, which he referred to *presencing*. The meaning of presencing, Scharmer (2000, p. 4) states, is "to sense and bring into the present one's highest future potential; the future that depends on us to bring it into being". This type of organisational learning is a change from reflective learning in which learning from past experiences was used. Scharmer (2000) referred to learning through presencing as leaders using their deepened consciousness to sense, represent and enact emerging futures, especially in relational dynamic emerging organisational environments. Thus the leverage point for curricula transformation is the interface between transdisciplinary teams and health professional experts who meet and connect across disciplines and sectors, in which the *content* of awareness of social actuality and the blind spot or the *source* from where perception function,; and the *systemic collective attention, shifts within the relational structure* (Senge et al., 2006). *Enacting curricula reforms* in this *relational structure* between *observed or content* and *observer or Source*, is the *opening* through which the health ecosystem reality comes into being. As explained by Scharmer (2000), our *structure of attention* characterizes the only part of our *social consciousness* that we can have complete control of, because we create the structure of attention ourselves; therefore, we understand both the actualized structure of attention and potential alternate ways of operating. Utilizing these principles of Theory U, as described by Scharmer (2007), in curriculum reorganisation, facilitates opportunities in which graduating health science students develop holistic insights, for example, the crucial health determinants in the population. Also, through this relational structure of learning they acquire leadership skills to mobilize around *leverage points* in the system, by increased interdisciplinary and transdisciplinary team practice and learning, social mobilization and political advocacy, irrespective of their area of specialization.

In the dynamic continuously changing health system, continuing education is essential at all levels of the health ecosystem, through interactions in which complexity of health improvement becomes dominant (WHO, 2015). In the Global Strategy on Human Resources for Health: Workforce 2030, the

WHO plans (2015, p.48) emphasise that transformational learning in practice, academic centres and within communities leads to "locally responsive and globally connected health systems leadership". In addition core introductory components on the health curricula (Bemporad, 2018) inclusive of integral systems thinking frameworks in the form of E-learning, competency-based health curricula, team-based learning, and engaging in participatory research strengthens trans-professional education in medicine, public health, nursing, allied health and health policy design (Frenk et al., 2010).

Furthermore, integral experiential learning (Pillay, 2014), incorporating academic disciplines such as economics, ecology, anthropology and organisational management, interrupts the traditional professional and disciplinary silos and reconfigures transdisciplinary relationships, organisational learning and team intelligence, thereby constructing new forms of case studies, practical experiences and systemic collaboration (de Savigny, 2009).

The health science curricula should be integrated with approaches and methods of systems science, for instance, knowledge synthesis, concept mapping, social network analysis, programme budgeting and marginal analysis, and system dynamics modelling, thereby creating opportunities to expand systemic relational learning (Atkinson, 2015). In an article on evolution of perception of self and the world, Pillay (2016) describes that in his experiences of deepening consciousness, the possibility of a period of inner reconfiguration, mental spaciousness, and how seeing the world from a dualistic perspective was an illusion, occurred. From this notion of experiential learning in which deepening one's consciousness is explored and the courage to empower oneself by deconstructing illusory separation and constructing systems of consciousness, emerges as a possibility to be included on health sciences curricula.

Emergent integral techniques and experiential tools, for example, Theory U, in which shifting the structure of collective attention provides the learning environment for expanding awareness of nondual philosophy, embrace diversity by developing new ways of cooperation and social re-engineering is discovered (Norton, 2012). As a critical mass of individuals reflect on their cognitive limitation and engage in practising this integral consciousness perspective, organisational consciousness begins to shift and conscious organisations become more aligned with the complexities of the changing external reality, and simultaneously align with emerging possibilities (Reams, 2005).

When health science governance organisations, for example, Health Professional Council of South Africa (HPCSA) in which curricula and policymakers re-examine and question the fundamental assumptions of various theories and practices, and reconceptualise the curriculum by creating meaningful conversations, didactic methodologies and insights of experiential learning, integral consciousness is enabled (Ross, 2012). Adopting this holistic approach to learning provides

opportunities for health science students not only to solve or to interject (Mandala, 2008), but to participate interdependently in interconnected evolutionary holarchy of knowledge and methodologies, in a process of profound engagement and collective learning (Schieffer, 2016). The concept holarchy has been described by Wilber (2005, p.50) as a hierarchy of holons or subsystems made up of an "arrangement of values" at a number of levels, namely intentional, behavioural, social and cultural values. Individuals identify with each of these values in the holarchy depending on their stage of development. Thus, the integral approach to learning interconnects these subsystems of values and transcends from individual awareness to evolve into collective consciousness.

Moreover, the lens used in integral consciousness occurs at various levels, namely, at the micro-world of individual biosphere, or meso-world in transdisciplinary team learning and the macro-world of the greater collective systemic collaboration. Also, integral consciousness is manifest of the subject-object dialectic relations in the structure of a holon (van Olmen et al., 2012), implying interactions of systems within systems. Holons as defined by Wilber (2007, p.9) are "entities that participate simultaneously in networks of parts and wholes", as in humans the mental subsystem interacts with the physical subsystem within the whole human system. These integral inquiries to learning transcends, and includes, various theories for example complexity theory and methodologies, by providing insights and opportunities to disclose or integrate patients' subjective interpretive data, as well as objective behavioural data, intended for diagnosing various health complications, pathologies and systemic imbalances, as well as offering interventional approaches (Artley, 2018).

Furthermore, health systems' research inevitability requires systems thinking to understand health systems complexities, and enable transformation to become transdisciplinary; using multi-method approaches (Mills, 2011). Systems thinking uses influential methodologies which are under-utilized in transforming health systems research (Homer, 2006). To inform health leaders strategies on strengthening the relationship between research, policy and practice, implementing complexity theories in qualitative research, and considering the local context, through applying community-based participatory and action research methods, studying organisational networks and understanding the collaborative behaviours that impact health, empirical integral data is generated (Best, 2010). According to Swanson et al. (2012), rethinking health systems strengthening strategies and qualitative research methodologies will narrow the scientific knowledge translation gap between research and experiential practice. Other benefits of implementing systems thinking qualitative research methodologies are to consider the diverse health ecosystem contexts, and by mobilizing communities around health promotion, shifts in the research paradigm from the current research-to-practice model to an applied research paradigm (Livingood et al., 2011) emerge. Ethical enactment in health system and policy research is empowered by engaging health policymakers and potential research consumers in research planning, interpretation of findings and to consider implications for intervention; as a

result, significant research outputs as well as potential users' receptiveness of research findings emerge (Sterman, 2006).

A new leverage for emergence is non-separation and developmental research. The meta- curriculum, with systems thinking that facilitates the interconnectedness of cognitive, emotional and social learning, can be realized (Gilson, 2012). An example of non-separation and developmental research is using the system dynamics modelling approach, which reveals relational feedback loops in dynamic behaviours and health systems activities, thus strengthening understanding of the interconnectedness of cognitive, emotional and social learning (Van Olmen et al., 2012). For instance, evaluation of public health policies (Atun, 2008) and risk assessment, using a system dynamics approach, to evaluate economics of health interventions, and cost-benefit analyses pertaining to competing technologies and healthcare strategies, is another example of engaging transdisciplinary teams in enacting integral ethical research. Also, by embracing an organisational culture that constantly identifies knowledge gaps in health practice procedures and enables integral ethical research to fill these knowledge gaps, iterative holistic learning, a change in thinking and practice behaviours (Lane, 2013) among transdisciplinary teams, emerge.

8.3.4 Ethical Enactment in Human Resource Practices

In the complex adaptive health ecosystem, leaders are required to have diverse repertoire of skills as the context dynamically changes (Best, 2014). The functions of leadership as described by Adair (2009) in practising these diverse range of skills is to assimilate knowledge, develop awareness, understanding and abilities for example; the needs for achieving the task, needs for developing individuals and needs for building the team. As a result, leaders who concurrently develop all three of these functions become effective leaders (Chibber, 2010). This ability of leaders to function holistically is constructed on the notion of the *fundamental nature of wholeness*; Reams (2005) discerns that people tend to function or work from levels of consciousness incompatible to the situation.

Reams (2005) authenticated this view of fundamental nature of wholeness through personal experiences in spiritual practice and studies he conducted in transpersonal areas of consciousness and psychology and hermeneutics and quantum physics. Consequently, ethical enactment in human resource (HR) practices in the health ecosystem requires practitioners to acquire a fundamental shift in consciousness and to transform their approaches to developing, training and supervising. Gebser, et al. (1985) refers to a *world view of integral consciousness*, which goes beyond our conceptualization, to consciousness being further than our rational analytical approach of perceiving the world. The notion of complexity leadership through an integral approach, enables an inclusive pragmatic

unfoldment of interrelationships, in diverse contexts, through dialogue and transdisciplinary practice, resulting in HR practitioner's conscious shift in paradigm (Küpers, 2007). Another integral methodology is to engage in complexity theory, which explores the relational nature of interaction and adaptation in *complexly interacting systems,* and understand how these interactions influence emergence, innovation, and organisational capability, are enacted (Russ, 2001).

In a study conducted by Russ (2001), their focus on leadership efforts was on behaviours that *enabled* organisational effectiveness, as opposed to *determining or guiding* effectiveness. These researchers concluded that using complexity knowledge expands conceptualizations of leadership from perspectives that are deeply advanced in psychology and social psychology such as human relations models, as well as processes for working in dynamic systems and interconnectivity (Russ, 2001).

In addition, awakened integral leaders are also committed to developing systems thinking among transdisciplinary teams, for instance, between health facility managers, programme managers and HR practitioners, with systems thinking skills to advance organisational and team learning. An integral approach provides opportunities for organisational and team learning to occur through interactions using various sources of knowledge; namely theory, research, monitoring and evaluation, and tacit knowledge (Mandala, 2008). The integral approach also transcends the debilitating dualistic arguments in which either contradictions or reductionism is replaced by co-determined, mutuality, complementarity and integral interconnections (McConnell, 2014).

An integral approach validates the rationale that enables exploration of diverse paradigmatic orientations, from within transdisciplinary teams and the organisation (Schieffer, 2016). Questioning and constant re-examining fundamental assumptions of different theories and practices empower pragmatic experiential learning, which promotes leaders and teams' paradigmatic consciousness, thereby deepening an integral understanding of organisational psycho-socio-cultural and structural realities (Hayes, 2015). Even though paradigm consciousness develops (Oosthuizen, 2017), it does not mean that the previous paradigms and theories have been eliminated. By leaders transcending, and including, various theories, methodologies, insights, and integrating different conceptual lenses in describing the complex realities and relationships, deeper consciousness emerges. Wilber's (2007) integral leadership theory, when applied to developmental leadership, dynamic system complexity and to organisational culture, shows that growth, development, and organisational progress emerge.

Research conducted by Swanson et al. (2010), in collective health system dynamics, has publicized possibilities for transdisciplinary teams in capturing complex, dynamic nature of health challenges. The results of this study described the effectiveness of the system dynamics modelling approach, especially in planning at micro-level of health services, for example, systemic modelling in hospital

departments like HR practices, planning bed and equipment requirements, appointment scheduling, facility location and relocation. Ethical enactment in HR practices are also enhanced by developing and implementing programmes that engage key stakeholders; for example, the registrars in KZN DOH in equal partnerships, through regular, robust monitoring and systemic relational feedback loops, and transparent use of data.

According to Wilber (2007), integral leaders who co-design the organisational vision, values and HR practices to improve people's health over time, also enable clarity in roles, relationships, and programmes; which provide opportunities for transdisciplinary team learning of self-organizing emergent phenomena. Transdisciplinary teams enhance knowledge generation and create ideas from the lens of diverse perceptions and experiences, thereby complementing organisational learning, from systemic emergence, as it occurs (Lazăr, 2015). The organisational structural functional dimensions, and inter-related connections can be pragmatically assessed, as the integral leader's expansive perspective and ethical compass, contextualizes and facilitates transdisciplinary collective team orientation. Awakened integral leaders relationships which are grounded in trust, authenticity, and genuine caring (Vaughan, 2002), enable transdisciplinary teams to share ideas, and team members are empowered to deconstruct their own uncertain values; they deepen, expand, and modify their development of common organisational meaning and values aligned with emerging team learning. This shift in HR practitioner's lens from a reductionist *I, Me* approach to an all-inclusive *We, Us* integral approach, focuses the HR team on specific, and interconnected, organisational processes of intentional, behavioural, cultural and social systemic domains (Midgley et al., 2013).

Awakened integral leaders also reveal extraordinary levels of spiritual intelligence and dynamic thinking; since, according to Kessler (2000) and Moffett (1994); the leader's souls are harmoniously integrated with their minds. Emmons (2000) referred to spiritual intelligence as intensified consciousness, while Howard (2009) defined spiritual intelligence as the capacity to intuitively construct meaning, sensing and observing the interconnectedness between experience and individual consciousness. She also described spiritual intelligence as related to beliefs and ethics of individuals as these contribute to organisational health and wellbeing. The emphasis is that spiritual intelligence is not reliant upon structured religious orientation. Another description of spiritual intelligence, according to Zohar (2005), is that it is an inborn capability, which connects the meaning of individual actions, and intellectual experiences with their values and their meaning and life's purpose. Spiritual intelligence is also referred to as transcendental awareness, constant integrated awareness and conscious state expansion, which is the ability to recognize interconnected aspects of the individual self, of others, of the physical world and the universal ecosystem (Baba, 2014).

According to the theory of awakened leadership, another characteristic of the awakened integral leader is dynamic thinking. Dynamic thinking is the ability of utilizing feedback systems thinking to perceive complexity involving multiple convoluted interdependencies interacting in our progressively interconnected world (Morecroft, 2015). According to Senge (1990) in *The Fifth Discipline,* feedback systems thinking is a shift in mindset, giving an understanding of corporate and social context as well as a corrective approach to altering silo mentalities and contracted functional perceptions. Habitually, managers' thinking style is linear or event-oriented thinking; for example, in organisations, leaders rely on thinking of problem as events to thinking of solutions as fixing. Event-oriented thinking as I discussed in Chapter Four in this study, is prevalent, and leads to swift decisive managerial action; however, there are limitations to this open-loop thinking, in addition to crisis management approach to interventions. The feedback systems thinking approach which I described in Chapter Five contributes to silence for circular thought, by viewing context, mental models of co-workers, public opinions and policy or business strategy. The awakened integral leader uses dynamic thinking as leverage for change by involving co-workers in co-designing policies and providing opportunities for shifting their mechanistic thinking styles to feedback systems thinking. The iceberg model I used in Chapter Four of this study refers to events which are visible and invisible mental models inclusive of co-workers' beliefs and values which the awakened integral leaders is conscious of and requires reflection to be able to apply the dynamic whole systems thinking approach. Wilber's (2004) Integral Theory offers a unified framework to addressing these dynamic systemic contexts with the use of intentional, behavioural, social and culture quadrants. He also illustrated individual value systems and worldviews as originating from interactions or "Life conditions" as well as "Capacities of the mind", through his Spiral Dynamics model. How people think, their worldviews, value system, psychological reality, belief structure, organisational principles, are represented as elements of information in our consciousness which comprise the content of *vMemes* in this Spiral Dynamics model. *vMemes* are used to analyse integral systemic dynamics through a colour sequence in Spiral Dynamics. Examples are *red* denotes characteristics, like being impulsive and self-centred, energetic, powerful, attitudinal survival of the fittest, respectful; egoistical focused on I-the mighty; *green* signifies postmodern, community, equality, feelings, sensitivity, equitable resources distribution of the ecosphere, consultation and consensus, relativist; we, who are tolerant, and *turquoise* indicates an all-inclusive, experience wholeness of existence, wholistic, intuitive way of thinking globally; emphasis on *We*, who are in the making. The awakened integral leader is conscious of these intentional, behavioural social and cultural values as opportunities are facilitated to transform governance, work ethics, and organisational culture and enact HR practices.

Furthermore, awakened integral leaders engage in self-introspection (Vaughan, 2002) and have a reflective understanding of self, which provides an essential filter to enable perceptions from multiple dimensions (Starratt, 2004). This collective empathetic attitude inspires transdisciplinary teams, in

addition to becoming a Source of team energy; as team members appreciate significant meaning of these integral values and understand how by ethical enactment of co-designed goals, fulfilment to their work life is realised.

Likewise alternative shift in transdisciplinary team consciousness, is the ethical enactment in HR practices, as the recognition and celebration of team accomplishments, which are systemically interconnected to shared goals promotes self-actualization of individual team members, within the organisation, though advancing essential transformation and organisational growth (Posner, 2012). The judicious use of power by awakened integral leaders; enables the redistribution and relinquishing administrative power (WHO, 2015); so that transdisciplinary teams could expand their experiences, pursue deeper meaning and purpose on behalf of the whole organisational benefit.

Similarly, integrating the concept of spiritual intelligence into organisational programmes is challenging in instance of HR officials, who are required through bureaucratic institutional directives to focus on objective content-based policies, and conventional organisational and developmental processes (Gilson, 2012). Ethical enactment of HR practices within an ontological context of spirituality is noticeable among awakened integral leaders who engage in transforming their consciousness. According to Fry et al. (2011), spirituality is interconnected with the human spirit and values, and they make the distinction that religion is characterized by a set of beliefs, prayers, customs, rituals and devotional practice. Spirituality is a subjective experience, felt and understood as the presence of the spiritual self, thus making it difficult to define and quantify. Bhagawan Sri Sathya Sai Baba (2014, p.28) explained that spirituality is "transcending religion to encompass innate universal human values of truth, right conduct, peace, love and non-violence". In this study, I perceived that as leaders enact these human values and seek to transform themselves and others to deepen their consciousness and dynamic thinking; they inspire change rather than dictate it. O'Brien's (2014) study in business ethics and leadership observed that effective leadership is grounded in spirituality and the three elements of fairness, caring, and equity directed their leadership practice. The FG in my study observed that some HR practitioners are willing to enact their innate values of equity and fairness in practice, but the leadership paradigm in the work environment dictates a culture of compliance rather than commitment. Emmons (2000) described individual spirituality as enabling leader's self-awareness and personal meaning, thereby developing their decision-making skill, goal attaining capacities, and inspiring employee performance and production. According to Maslow (1999, p. 137), accessing self-knowledge is confounded by our defence mechanisms which we use to "avoid becoming conscious of unpleasantness or dangerous truths". Despite the fact that health care leaders with positivistic and pragmatic characteristic determination realise it demanding to comprehend the significance of applying spiritual intelligence intended to achieving prescribed health objectives (de Savigny, 2009), these defense mechanisms elude them practising their spirituality or

perservering transforming consciousness. Stephen Covey, self-help author, discerns that our spiritual intelligence is our fundamental, central, and our commitment to our value system, the Source that awakens, inspires, uplifts and connects us to deeper consciousness, while humanistic psychologist Maslow in his framework on hierarchy of needs shows that spiritual needs are interconnected systemically to entirely the physical, social, and intellectual needs (Andersen et al., 2007). He also focused on spiritual needs that which motivate a person to act with dedication, self-sacrifice and service.

"Science and spirituality are becoming co-terminus" (Baba, 2014, p. 123) and is characterised by selflessness in action which reflects an awakened consciousness. Also, neurological studies (Singer, 1995) showed that artificial stimulation on the temporal lobe brain activities is associated with spiritual experiences and reflects that spirituality is effective. Corresponding to this ontological context of spirituality, Wilber (2004) understood that spirituality and intuition are fundamental to the well-being of human society and stability of our organisations. He developed his Integral Theory and Spiral Dynamics to confront these systemic behavioural dynamics in a wholistic approach as well as a focused expansion on consecutive worldviews. The wholistic approach to systems thinking (Senge, 2014) and emotional intelligence (Goldman, 2014) also contributes to developing all domains of our being cognitive, affective and ontological spiritual consciousness. Pillay (2016) described connectedness of nondual perspective of transforming awareness and consciousness. These ontological theoretical frameworks offer opportunities in deconstructing our present narrative to creating awakened integral leadership through individual inner engagement.

Another health organisational challenge is the systemic inherent tension between the medical model and theoretical orientations toward health science, as knowledge product endeavour as opposed to learning as an intellectual holistic growth process (Gilson, 2012). The focus on spiritual intelligence can potentially create further anxiety for leaders who are already under the burden of demonstrating effective organisational performance. Equally significant challenges are cultural, ethnic, and socio-economic issues increasingly afflicting multicultural and socially stratified organisations (O'Brien, 2014).

Although spirituality is perceived as a subjective notion, in context of organisational diversity regarding officials' racial, ethnic, gender and cultural understandings of spirituality, ethical considerations are significant, regarding increasing bias in terms of HR practices, selection criteria, supervision or initiating an integral approach in transdisciplinary teams (Zohar, 2004). For instance, diverse understanding of spirituality and bias is that, compassion is hardly ever a requirement as selection criterion for medical training and health professionals' bedside manner is not included in the core curriculum of most academic health care programs (Doherty, 2011). Doctors get repeatedly

trained to avoid or suppress their emotions, in relation towards patient's circumstances, or their disease progression and healing processes. As a result, this conservative biomedical model often fails to offer a health system that embraces immense potentials for integral communication, wholistic healing and the opportunity for wholistic human growth and development (Schlitz, 2005). Consequently, ethical enactment by health officials and HR practitioners requires expansion of their knowledge base and experiential learning, regarding the interconnections and integral relationships between spirituality, awakened integral leadership, and organisational development. According to Morecroft (2015), the psychosocial and spiritual organisational environment are the intangible traits that influence individuals to take decisions and act. These traits define organisational beliefs and attitudes which consequently form the prerequisites to their ethical enactment and responsiveness. An example of inspiring psychosocial and spiritual organisational beliefs and attitudes is the culture of technological excellence at Massachusetts Institute of Technology, that permeates all sections comprising the humanities and management, who determine collective decisions on faculty recruitment, the curriculum and choice of students (Morecroft, 2015).

8.4 ENACTING INTEGRAL HEALTH TEAMS

Applying the theory of awakened integral leadership amidst the chaos, messiness and multitude complex layers of organisational dynamics (Senge, 2008), the awakened integral leader constantly seeks emergent development. This emergence is evidenced by the awakened integral leader taking risks in decision-making, engendering trust and cooperation, embracing vulnerability and uncertainty, engaging in public conversation and information flow and acquiring deep understanding of the whole health ecosystem context (McGregor, 2008). Systemic organisational dynamics comprise multiple layers of material, social, cultural and spiritual needs and society's expectations. Once society experiences conflict between their needs and expectations, significant contextual disconnects occur in the whole health ecosystem. The integral awakened leader's expanded consciousness observes these gross, subtle or causal (Wilber et al., 2007) sociocultural or spiritual disconnects as opportunity for transformation to occur. Being conscious of these gaps or disconnects and constant systemic tension, fluctuation, and disequilibrium, the integral awakened leader enacts presencing by facilitating integral health teams to bring order or balance in the system. Scharmer (2007), described presencing as being aware or mindful of how our behaviour inclusive of physical and mental authentic attendance, or implying body, open mind, open heart, open will and spirit, influences others. Also, presencing denotes growth of consciousness and leadership and connects us to the process of change inherent in Theory U (Scharmer, 2007), which leads to actions reflecting shifts from the focus thought/me that indicates the individual part, to awareness/us signifying the Whole or Source.

With this expanded consciousness integral team performance, as well as participating fully in imminent tasks, there are emerging possibilities to share insights, observe, and experience diverse perspectives in which team members consolidate their learning. Consistently strengthening awakened consciousness and presencing from the Source, and enacting integral team practices, overcome these disconnects between egocentric attitudes, mental models, systemic and structural disconnects and Self (Scharmer, 2007). Integral health teams interact with substantial structural disconnects for example, disconnect between institutional leadership and co-workers, disconnect between immeasurable growth domineering service demands within finite resources and disconnect between technological advancements and essential societal needs. Moreover, these gaps or systemic disconnects result in complexities at several organisational layers such as the invisible elemental level, the physical layer, the environmental, community, mental, emotional and perceptual layers, the financial, political, and technical layers as well as the spiritual layer. This disconnects result in systemic imbalances that lead to poor organisational performance (Scharmer, 2007).

To recognize the cause for poor organisational performance, awakened integral leaders explore causative variables with the intention of understanding how service delivery may lack quality, how the systems/processes oscillate, how organisational culture may be contributing, and how leadership consciousness might be limiting performance. Awakened integral leaders' constant integrated awareness of these systemic disconnects are able to facilitate shifts from egocentric to worldcentric consciousness or as Wilber (2006) stated to in his AQAL model, as *We* space. This collective consciousness resonates and creates the space in attaining abundant trust among integral health teams to influence work performance, enhance their professional role, and integral practices, resulting in the systemic balance and well-being of local and global citizens (Senge, 2008).

Since health ecosystems are dynamic, constantly evolving and generating systemic tensions, awakened integral health teams need to enact from a balanced and centered consciousness which leads to deep, meaningful practice and embraces integral behaviours in perceiving, thinking, and serving (McGregor, 2008). Pragmatic use of Scharmer and Senge's (2006) U-Process enables integral health teams through various states, where they can access diverse perspectives, to co-create and enact purpose-driven solutions to organisational imbalances. Also, integral practice involves humanizing innovative skills on several levels that is personal, professional, political and social. Collectively, skill enrichment has a positive impact on other skills creating balance and centeredness in all human dimensions and practices (Donkers, 2016). A dynamic on-going learning process evolves as these integral practices are consciously experienced within organisational dynamics, which Wilber (2006) describes as transformational guidance through expanded consciousness of leadership.

Gebser (1985, p.8) described integral consciousness as existence with a "worldview that goes beyond our conceptualization" or *Being* which comprises awakened awareness beyond our rational analytical mode of knowing the world, in addition to the notion of *Wholeness* which represents a transrational way of framing things. Chatterjee (1998) referred to consciousness as the fundamental characteristic of integral theory which is unchanging, indivisible and regarded as Wholeness. He also described that from Wholeness, our level of consciousness organizes all complex human brain activities, our self-sense, self-identity and Being. Furthermore, he emphasised that "leadership is not a science or an art, it is a state of consciousness" and that "we can now begin to grasp the phenomenon of leadership as the field of awareness rather than a personality trait or mental attribute" (Chatterjee, 1998).

It is the awakened integral leader's consciousness (Chatterjee, 1998) that enables integral health teams to practice from a space of expanded awareness to attend to disconnects between technological advancements and essential societal needs. As organisations adapt to meet the global dynamics in the 4IR, integral leaders' consciousness, behaviour and organisational culture within the systemic complexities, impact transdisciplinary team's awareness of their connectivity, emerge (Küpers, 2007). Awakened integral leaders with extraordinary spiritual aptitudes, are compassionate and empathetic, also they tend to think systemically and are consistently aware of their interconnectedness with the psychosocial spiritual context, organisational teams and communities they serve (Zohar, 2004). Using these integral principles, leaders facilitate and create collaborative relationships among transdisciplinary teams, which enable ethical enactment of behavioural patterns like sharing information, connecting with stakeholders and building relationships with co-workers inside and outside of the organisation (Buehler, 2016).

The 4IR requires digital transformation by many organisations, some of which are enthusiastically sponsoring youth to study science, mathematics, and engineering with the intention of increasing the cohort of future candidates with Information Technology (IT) skills. According to the WEF Report (2016), on the industry gender gap, females are significantly under-represented in the global technology domain, and attracting more females into the information and communication technology (ICT) industry; organisations need to actively recruit women. Also, Forum (2016) noted that diversity thinking and dynamic systemic approaches encourages creativeness and inventiveness. Awakened integral leaders who understand the significance of society interrelating with relevant technology empowers stakeholders towards energized progress, and who consistently engage in learning new ways of leading, enable diverse teams by creating the space, to become resourceful and adapt to change.

In constantly adaptive systems like health organisations in the 4IR, awakened integral leaders also need to learn how to successfully manage quantify and incentivize teams in virtual simulated work

places, and how to fundamentally connect diverse skill sets that will produce optimal results. The significant employment strategy among the reforms in HR recruitment policies, is to employ more women, the most-qualified candidate and create diverse transdisciplinary teams in virtual workplaces (Forum, 2016). To successfully manage complexity and changing dynamics (Epstein, 2007) in transformative relationships, leaders need to explore various team engagements. Shifting from *multidisciplinary* teams within one tertiary hospital, for instance, to solve a common problem like the KZN oncology HR shortages, and identifying bottlenecks causing delays in patient's treatment, to *interdisciplinary* teams in which collaboration among diverse stakeholders, create the space for possibilities to emerge. These changes occur at a meso level of the DOH; for example, redesigning the oncology policy, co-designing standard operating procedures and service level agreements for various actors. At the macro level, the national *transdisciplinary* teams with an integral perspective, will endeavour to expand team consciousness, in which collective agreement for various possibilities to co-exist, and engage in understanding the dynamic contexts, create synchronized coordination and energetic interactions.

These diverse elements of transdisciplinary teams also create motivation on multi-levels of the individual, team and organisation. Furthermore, integral teams engage in critical self-reflection, as well as learn to observe and represent expanded paradigms as describing diverse strata of team values, which also enables a more accurate reflexive exploration of leadership and organisational practice (Lewis, 2002). Additionally, the shift from the health care system focused medical model approach, to an integral health approach, will require multiple actors, working in integral transdisciplinary teams, with a common goal, across several sectors, for example, health, social welfare, education, agriculture, and justice (Halfon et al., 2014).

The enactment of integral transdisciplinary teams requires a psycho-social and emotional ecosystem, in which the fundamental state of leaders enables relationships that lead to extraordinary performance. These relational interactions among integral team's awareness, perceptions, emotional balance and behaviours change, as their decisions and responses emerge (George, 2003). Awakened integral leaders who practise authenticity and commitment to enabling transdisciplinary teams to become empowered, create the contexts in which both positive and negative feedback is provided, and teams respond to pragmatic systemic dynamics (Morecroft, 2015).

According to Avolio (2013), as transdisciplinary teams become empowered, their confidence to express courage, transparent honest communication, collective decision-making and self-direction emerges. Empowered transdisciplinary teams also remain true to themselves, despite external pressures to conform. Moreover these teams' proficiency in self-awareness and self-regulation (Avolio, 2013) their inward focus, self-examination, self-control, self-confidence, self-study with

emphasis on reflexivity and collective group character, result in reliable and trustworthy decision making, moral and ethical enactment (Lessard, 2007). Heidegger noted that when individuals try to fit in with the desires of others, they experience *inauthenticity*, whereas when individuals respond to their *conscience,* they experience *authenticity,* and when guilt is experienced, authenticity as resoluteness emerges (Gardiner, 2011). Being authentic can also be described as when one *experiences focused listening to* and *heeds one's unique capabilities and potential* or *being true to oneself* (Escudero, 2014).

Another of Gardiner's (2011) leadership theories of the self, that the self is never neutral, as it always occurs within systems of power. Thus, as contextual consequences of a person's spatial and temporal position changes, authenticity manifests itself differently. When the integral leader opens up spaces for transformation of leadership practice, transdisciplinary teams recognize their interconnectedness, and become conscious of non-dualism (Wilber, 1997). This leadership practice reflects an understanding of non-separation, selflessness, is values-based (Chibber, 2010) and is a conscious choice to mitigate duality, affecting unusual personal power energy. Similarly, energy in personal power results in determination to transform, to overcome polarization or differentiation among team members, as well as an initiative to resonate positivity (Cummings et al., 2014). Personal and collective team emphasise character, self-knowledge and skill to practice significant harmony in thought, word and deed (Chibber, 2010).

When awakened integral leaders facilitate transdisciplinary teams to engage in systems thinking (Goleman and Senge, 2014), the illusion of separateness and duality is deconstructed, and an emergent ontological awakening through experiential learning results (Goode, 2007). Non-separation essentially is interconnected elements in dynamic systems , existing in relation to feeling connected with others, deepening consciousness and experiencing shifts in perception, within an integrated psychoemotional and spiritual environment (Pillay, 2016). Awakened integral leaders, policymakers and managers, for example, who practise integral leadership strategies through stakeholder analysis to identity the key actors, and to assess their knowledge, interests, positions, alliances, and importance related to policy design, interact more effectively by their inclusive approach, and gain increased support for a given policy or program (Schmeer, 2000).

As complexities of illness, disease, and aging are confronted, new models for health care are emerging. One such model is the integral health care model; that shifts from the medical model wherein reduction of symptoms was the focus, to recognizing various dimensions of life, therapeutics, and curative aspects; inclusive of relevant stakeholders enacting integral health teams (Schlitz, 2005). Likewise, the integral health care model is grounded on a natural intuitive understanding of life and a pragmatic perspective of non-separateness, focusing on a holistic, multidimensional physical,

psychosocial-emotional and spiritual dimensions and a transdisciplinary approach (Wilber et al., 2005). As integral teams consistently enact this holistic approach, their personal, interpersonal, transpersonal, the institutional and organisational characteristics transform their daily life and work (Davidson, 1998). Also, clinical team leaders who enact collaboration, trust and respect, enable collective team education and improved responsibility, as these integral elementary values empower front-line staff to take ownership of their service provision, as well as to integrate organising, coordinating and delivery of services, thereby improving health care practices (Greenfield, 2007). Goleman's leadership typology offers a variety of leadership styles to access, in complex health care organisations, as the need to respond to, dynamically changing contexts shifts (Saxena et al., 2017). Similarly, studies among nurses indicated that the manager's responsibility is focused on health "*care management work* whereas the nurses duty is on *care production work;"* indicating a clear *separation* of the organising of the managers' work from the nurses work as delivery of services (Greenfield, 2007). Consequentially, the integral team approach provides an opportunity to shift from the *separation of work* and *delivery of services* to *joint managerial and clinical responsibilities, decision- making and shared governance* (Schieffer and Lessem, 2016).

8.5 CONCLUSION

For ethical enactment to be effective, the ontological context in the KZN health ecosystem, which is intrinsically embedded in combinations of political, public, administrative and health policies, structures and practices, necessitates reforms and organisational changes (Halfon et al., 2014). To initiate profound transformation in the public sector such as in KZN tertiary health ecosystems, *paradigmatic deconstruction* in reductionist thinking, egocentric consciousness and limiting health care practices, to *constructing whole systems thinking*, *integrated participative consciousness*, and a *transdisciplinary team approach, are* essential (Todorova, 2013).

Insights gained from the above deliberations are that, as health care leaders engage in deepening their consciousness, expanded awareness of integrating diverse conceptual lenses in understanding the complex realities and relationships, emerge (Goleman, 2014). Another insight is that when a conscious choice is made to become awakened integral leaders, the influence on one's consciousness, behaviour and resultant organisational culture, within the systemic complexities, develops. I also gained deeper understanding of, how implementing the integral system dynamics approach to enacting integrated health care practices, impacts on the psycho-socio-cultural and structural elements in the health ecosystem and a conscious organisation emerges (Donkers, 2016). Similarly, awakened leaders who collaboratively enable teams, create an environment conducive to enacting integral health teams, in which transdisciplinary team's awareness of their self-mastery, connectivity and self-

reflectiveness effect a conscious health organisation (Elworthy, 2014). When individual and collective power is devolved; efficiency and productivity in the health ecosystem will increase.

Self-organising internal relational, administrative and managerial capabilities intensify, and organisational adaptation such as co-designed policies (Sheikh, 2010), integral practices, curriculum reforms (Barber P. G., 2010) and e-Health surface, to meet the global dynamics in the 4IR (Senge et al, 2001). As awakened integral leaders enable transdisciplinary teams to engage in epistemic, iterative learning and transformational leadership, organisational culture is enhanced. Furthermore as integral leaders facilitate interfacing with basic expectations about how health is delivered, as well as organizing single-mindedness for a collective vision of equity and adeptness, inspiring all stakeholders' values, thus influencing the organisational culture (Swanson et al., 2012). Goleman and Senge (2014) emphasised the *triple focus,* that is, focus on yourself, focus on others and focus on systems; besides developing the cognitive power, abilities in self-confidence, self-discipline, empathy or being socially adept should be considered as competencies that organisations find distinguish excellent performers from the average.

To effect this transformation, the traditional educational methodology and pedagogy in the current health science curriculum needs to include *systems-based learning*. From this study, it is observed that as health workers become empowered with systems thinking, system dynamics approaches and complexity thinking, this dominant channel enables building a learning organisation emerge (Senge et al., 2006). Experientially, enacting a systems dynamics approach also motivates transdisciplinary participative consciousness, in analyzing health system policy, and the impact on human resource capacity and behaviour of system components, for example, workforce, finance and infrastructure (Atkinson, 2015). The resultant dynamic characteristics of health organisation (Swanson et al., 2012) and the socio-behavioural-political-economic culture, such as social networks, ethics and values, the nature of awakened leadership (Elworthy, 2014), the nature of influence (Petronytė et al., 2016), and the relationship of public health workers to new policy design (Choi, 2006), can all be enacted. To know, experience manifest and enact authentic awakened integral leadership and governance, decision-makers, policy architects, educationists, health leaders and public health officials need to actualize their awakened integral leadership roles (Frenk et al., 2010) and enable transdisciplinary teams to realize their potential (Alonge et al., 2016).

In Mitchell, (2014, p. 30) According to George Bernard Shaw:

> "Life isn't about finding yourself
> Life is about creating yourself".

CHAPTER 9

REFLECTIONS ON DISCOVERING AWAKENED INTEGRAL LEADERSHIP PRACTICES

9.1 INTRODUCTION

In this final chapter, I summarize an overview of my thesis as illustrated in Figure 55, as I reflect on expanding my consciousness from personal insights; I also describe my experiential learning and leadership insights and the implications of the SD approach methodology in transforming health systems. I conclude this chapter by discussing possibilities of extending the field of awakened integral leadership and system dynamics in health ecosystems and service delivery.
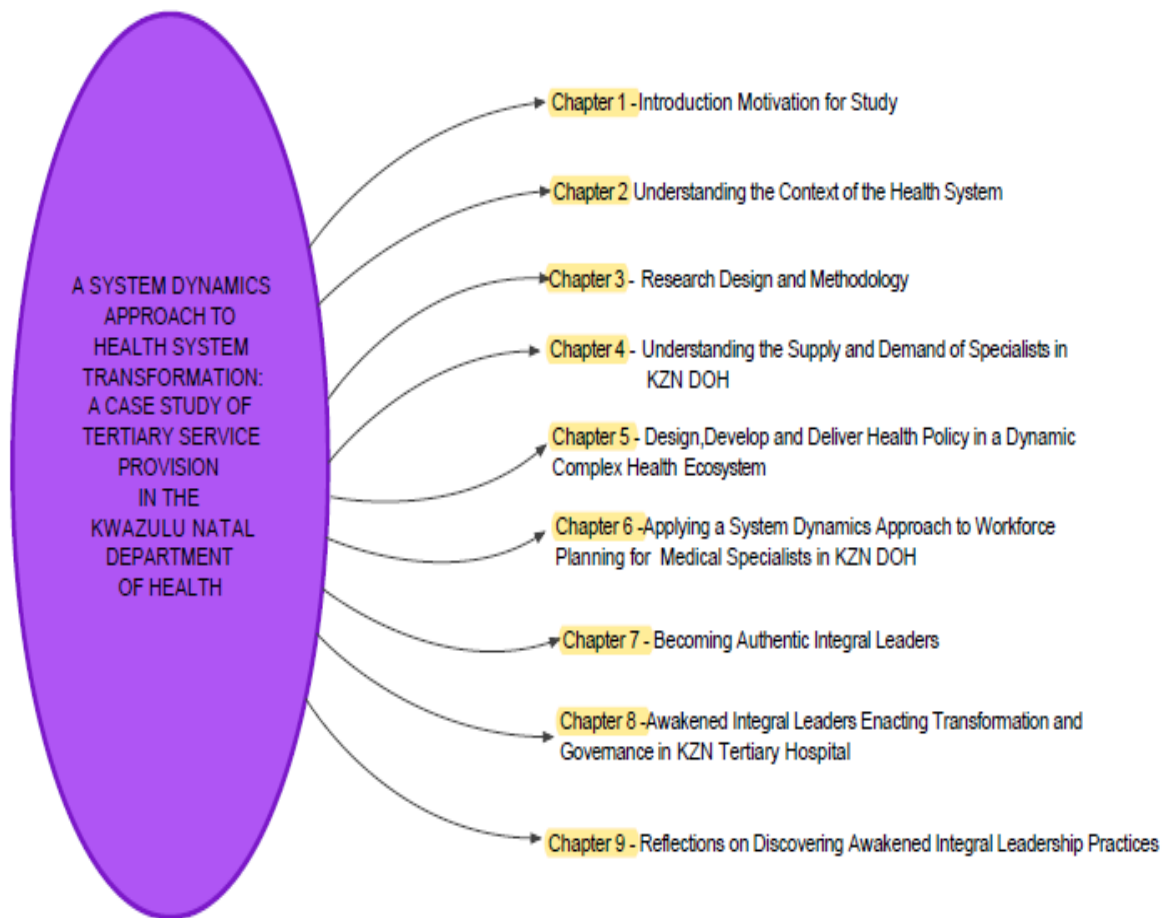
Figure 55: Summary of Thesis

9.2 OVERVIEW OF THE STUDY

In Chapter One, I presented the notion of the system dynamics (SD) approach used in my thesis, to attain a *comprehensive understanding,* and description of the *dynamic complexities* of the KZN health ecosystem and its relevance for health care leaders and managers. The motivation and rationale for my study was allude to, and related to the *context*, of *understanding* health care *leadership paradigms* and *practices*, *organizational behaviour* and *governance*. Also, I identified *transformative strategies* which addressed the research gap, and the existential question, of how we can *apply the SD approach* to diffuse these types of tensions, within *managed systems*. An explanation was presented on the overview, evaluation and summary of the literature review, which were integrated into my study. Aligned to the rationale and motivation for the study, my research questions sought to explain the underlying systemic factors and their *inter-relationships* that impact on effective tertiary health service delivery. Using the SD approach theoretical framework, I briefly described how *delays* caused tensions in *policy implementation*, *governance* and *decision-making,* which consequently affected the *supply and demand* of *specialists* in KZN DOH. Moreover, transformative strategies which I identified as methods in the SD approach were used to enable resource allocation to meet escalating patient demands, and envisioned interventions to reconcile policy needs, HR recruitment and patient needs. This chapter also described an outline of my thesis.

In Chapter Two, I discussed the *context* of the global, SA national and KZN provincial local health system. Furthermore, I presented an explanation on the analysis of the *causative effects* of the *identified problems*, the *relationships among variables,* and the *dynamic complexities,* arising in the SA health system. I clarified *key concepts that* I used in my thesis namely, system dynamics, dynamic complexity, causal loop diagrams, stock and flow diagrams, counter-intuitive behaviour and tertiary/ central health services. I described the theoretical framework of my thesis and explained the SD approach to *contextualizing dynamic complexity* in KZN DOH. The SD approach also improved my understanding of the problematic situations and the quest for appropriate interventions was pursued. The SD theoretical framework provided insight into the *behavioural dynamics* of the KZN DOH, the decision-making processes, the complex structures of the system, policies, complex managerial problems, and the strategies to prevent managerial crises. I explored the use of the SD theory which was to find high *leverage* management policies and organizational structures, to achieve priorities and contribute to new knowledge, and change in policy implementation processes. A description of key concepts in the SD approach, dynamic complexity in an organizational environment and societal context, with organizational structures, culture, governance, system behaviour and inter-relationships among actors was presented (Sterman, 2000). I also clarified the key concepts, such as how lengthy delays between causes and effects, and several conflicting goals, cause problems in dynamically complex systems**.** Insights into **t**hese problems, interventions, unplanned consequences, and causes to

resistance, or destabilization of the system by conflicting interests, or due to limited resources or capacities, were identified as relevant to my study (Hirsch and Homer, 2006).

In Chapter Three, the research design and methodology were deliberated. I discussed my intent to understand, the *system dynamics causal theory* of how pragmatic behaviour and dynamic complexities were produced in a *turbulent social system* like KZN DOH. I reflected on the transformative and explanatory paradigm (Mertens, 2010) to direct my research, and critically examine (Kothari, 2004) the health care leadership *mental models*, and *power relations*, *counterintuitive behaviour, organizational behavioural dominances* and *governance*. I selected Sterman (2000) qualitative SD approach and the complexity theory methodology, and explained how Morecroft's (2015) growth and underinvestment feedback model, was adapted to hypothesize and investigate the causative effects of the challenges, the relationships among variables and the dynamic complexities arising in the KZN DOH. The research technique I used was to interact with the sample of actors, who were represented in FGD, and wherein our dialogue specifically identified variables. The verification and reliability of data collected was conducted with the research FG, as well as observing the ethical reflections. I described the *feedback loops* in *causal loop diagrams*, feedback loop structures and time delays that affected the dynamic complexity and system behaviour, and the *leverage* points for organizational transformation. I further analysed the data which were used to improve our understanding of the problematic situations in the KZN DOH.

In Chapter Four, I explored *the research gap,* which is the *sustained shortage of specialists over time,* and the *research problem*, of *a decreased supply of specialists and the increased patient load demands* in KZN DOH. As I engaged with the FG actors, my understanding of the supply and demand of specialists in KZN DOH deepened. I also described the health system behaviour and how delays affected the supply and demand of specialists, using causal loop diagrams (CLD), which were developed from the data generated in the FGD. The CLD demonstrated how by analysing the context, the policy component and HR practices subcomponent interactions or relational feedbacks, among these system components and not complexity of the components itself, caused *complex behaviors*. By using CLD I was able to trace how the systemic feedback between policy directives and delays in the HR processes for creating and filling specialist posts in KZN DOH, impacted upon the *psycho emotional social status* and *performance of specialists*. Similarly, I reconstructed the data to illustrate how dynamic systemic complexity resulted in specialists finding it challenging to uphold practising their professional Code of Ethics and to deliver worthy quality health care. S*ystemic polarity* was considered, by using *positive*, *negative* and *balancing feedback loops* to demonstrate the manner in which an uncooperative health management environment, the lack of management accountability, staff shortage and health system deficiencies had negative consequences for implementation of strategic policies. CLD were co-constructed, to explore actors' mental models and in what ways

actual *expansion of the boundary of thinking* and *communicating significant interdependencies* are related. I also engaged with actors, to determine how mental models and systemic thinking are leverage points that totally transform systems (Meadows, 1997). The feedback structure of the health system was evaluated, which included information and communication technology (ICT), systematic enquiry and metrics or other ideas as defined by our mental models. Likewise, I related how our mental models are challenged by inconsistencies and limits our learning; by blinding us to the mutual feedback of expectations and perception. I demonstrated how systemic feedback influences the design of information systems to evaluate report and change as we learn. CLD were also used to correlate the *interconnections* with *health sector human resource information systems* affecting *supply* and *demand of specialists* and the *organizational behaviour over time*. Systemic feedback dynamics among variables in which *policy* and *policy decisions* affected the supply and demand of specialists especially the *production*, *recruitment* and *investment* in specialists was narrated. Equally the co-constructed CLD of the health management attitude to policy implementation, policy resistance, feedback and delayed recruitment practices were explored and the notion of policy and *HR recruitment processes reforms emerged*. Correspondingly, these co-constructed CLDs validated the relationships among actors, policy decisions, the KZN DOH system behaviour and the impact of delays in procurement of medical equipment have on specialists diagnosing and treating patients. In the same way the co-designed CLD reflected that delays, with the resultant, increased patient waiting times, and cancellation of medical procedures or surgical operations existed.

In Chapter Five, I examined the *international health policy* agenda noting the *shift from mechanistic thinking* and health policy emphasis on *disease-specific approaches* and the medical model *to* a focus on *strengthening wholistic health systems*. I engaged with using the system dynamics approach to explore how by *transforming health policy design, development and delivery*; *synergistic health effects emerge*. Using the system dynamics approach deepened my understanding of dynamic complexities in the health ecosystem, the power relations influencing policy actors, the *policy space,* and the intangible effects of policy change and policy implementation. I narrated how the dynamic complexities of the health ecosystem provided opportunities for policymakers *to rethink* in what ways the health systems can be strengthened, through active participation in design-driven policies and decision-making. I explored the notion of *coordinating policy processes* by *integrating governance*, *information*, *human resources*, *financing* and *technologies* resulting in *balancing systemic relationships*, *policy agenda setting* and *policy transfer*. I also considered how policy system dynamics feedback leads to *emergence* and *leverage for policy growth* causing effective investment and capacity expansion through redesigned health policies for example developing human resources.

In Chapter Six, I applied the system dynamics approach to *workforce planning for medical specialists,* in KZN DOH. I examined how, by using the SD approach, simulation of complex organizational

behaviour over time can be facilitated, with the aim of improving our understanding of these complex systems, the *imbalances* in the medical labour market, and analysis of the *workforce supply* and *demand* were observed. I analysed, the complex feedback health systems, by using CLD and stock flows, in which resources for example finance, HR or material resources, demonstrated *accumulation*, and *depletion*, in the stocks over time, as well as the *interdependencies* of these *variables*. I explored the notion of *integrating complex datasets*, by using system dynamics tools, and the *graphical illustration* of the system, enabled stakeholders to actively participate in the *validation* process. The improved stakeholder understanding of strategic issues, empowered viable strategic action that advanced the system behaviour (CFWI, 2004). I *reconstructed* a *system - dynamics-based workforce framework*, inclusive of reflection on the current recruitment practices, information flows, actors' mental models and best practices. I also reflected on my practical experience and understanding the dynamic complexity of the health ecosystem, in which variables can be used as *leverage* in the system, to influence *equilibrium in the supply and demand of specialists* and nurture *potential to retain specialists*. I described how *mental models* or mindset of actors shapes the health ecosystem's goals, power structure, rules and the organizational culture. I analyzed the distribution of power among actors participating in supply and demand of specialists over the rules of the system, and this effective leverage for change in HR policy. Furthermore, I observed other leverage variables, which were, the need to transform HR recruitment rules of the health system, in the form of incentives, penalties or limitations (Meadows, 2017). I presented the notion of this effect of *policy options*, in which several future scenarios analysis by workforce intelligence, can examine future uncertainties and minimise risk to achieve the NDOH goal of strengthening human resources for health.

In Chapter Seven, I engaged with the critical notion of *becoming authentic* awakened *integral leaders*. I presented a narrative on distinguishing between leaders and managers and theories on leadership. I explained the *rationale f*or choosing authentic awakened integral leadership in this study and critically examined the authentic leadership theory. I used the lens of authentic awakened integral leadership in *organizational system dynamics* and *emergent techniques* to become authentic awakened integral leaders to explore aspects of how the authentic leader's effect *mindfulness*, *systemic thinking*, *engagement*, i*nterconnected consciousness*, *spiritual* and *emotional intelligence* and consequently they initiate personal, organizational and societal unity in the ecosystem (Scharmer, 2016). I engaged with the data to examine themes like interconnections and unifying rational, emotional, and spiritual experiences which results in *unitized thinking*, *shift in consciousness* from ego to eco and how social change and the potential to reinvent organizations by being catalysts for organizational innovation are created. I examined experiences of leaders who demonstrated capacities for *expanded consciousness* of transcendence have advanced spiritual intelligence and behavior for instance humility, compassion, gratitude, and wisdom, as well as is reflective of their spiritual intelligence which empowers the leader with enhanced coping skills and determination to resolve issues (Emmons, 1999). I reflected on

the *proliferating pace of change* in this *4IR,* which necessitates awakened integral leadership behaviour like *authenticity*, *agility*, *flexibility*, *adaptabilit*y and *emotionally* and *spiritually balanced* leaders, who can *inspire co-workers* to reach their potential (Gardner et al., 2011; Senge, 2016). I also reflected on how technical, economic, financial and social complexity, will continue to increase, thus *ethical* and *moral integrity* (Northouse, 2017) of leaders' consciousness and inner intentions, will provide clear guidance to leadership practice (Robertson, 2014**).** These reflections provided me the *mental and emotional space*, to become aware that beliefs or assumptions not validated can create a cascade of effects and different concerns for leaders, and why it is imperative to clarify assumptions and beliefs, to introspect and examine our worldviews to assess accuracy. Another insight I gained from this exploration on becoming authentic awakened integral leaders, is the awareness of integral, modern, postmodern and traditional worldviews comprising values and universal beliefs which determines the leadership style. An additional insight I gained was that by exploring worldviews through feedback, becoming self-aware of behaviors and the effects my behaviour have on others, are some ways in reflecting on and changing my beliefs. By interacting with the FG actors, I re-examined how change involved healthy conflict and the way in which awakened integral leaders created enabling environments, for others to resolve conflict, influence the way they think, act and express their values and authenticity. I co-constructed the *emergent awakened integral leadership model,* which reflects the dynamic behavioural, psychoemotional and conscious interconnected transformative processes, from which I gained insights, and can be considered or further developed, to become authentic awakened integral leaders. Also reflecting on conversations and engagement with my research mentors on systems approach and leadership studies respectively and the FG actors has endorsed my understanding and altered my views of the leadership styles in the KZN DOH. I have become sensitized to the notion of developing my self-awareness and self- mastery as my heightened perception of authentic awakened integral leaders, emotional and spiritual intelligence, mindfulness and collaborative relationships of interconnectedness and unity has generated in-depth knowledge and understanding of my leadership practice. Other emergent leadership evolution insights I gained is, for example, awakened integral leaders enabling the development of integral health care systems. From these insights I reflected on the notion that the integral health care model which encompasses wholistic living, healing, inclusive of physical, emotional, spiritual, and ecological, and curing not just reduction of symptoms (Schlitz, 2008) can be initiated in KZN DOH. I explored the importance of science and technology in this 4IR and the possibilities of inclusion of personal and interpersonal multidisciplinary teams in the integral health model, which will humanize the health care encounter and reinstate the heart and soul of healing (Schlitz, 2008).

In Chapter Eight, the insights I gained when engaging with the research question, how using the system dynamics approach to envision interventions reconcile policy needs, recruitment and escalating patient demands awakened integral leadership practice and how enacting this leadership

practices in the KZN DOH were observed. From these observations, I concluded that for ethical enactment to be effective, the ontological context in the KZN health ecosystem which is intrinsically embedded in combinations of political, public, administrative and health policies, structures and practices, necessitates reforms and organisational changes (Halfon et al., 2014). I used these insights to identify possible interventional strategies to transform the leadership practices, in capacities like paradigmatic deconstruction in reductionist thinking, egocentric consciousness and limiting health care practices, to creating awareness of the characteristics of awakened integral leaders through constructing *whole systems thinking, integrated participative consciousness*, *conscious choice* and *enacting* a *transdisciplinary team approach* (Todorova, 2013). I also explained possibilities for *emergent transformation strategies*, such as health care leaders engaging in *deepening* their *consciousness*, which results in *expanded awareness* of *integrating diverse conceptual lenses*. in understanding the *complex realities* and relationships (Goleman and Senge, 2014) organizational climate and culture. I further described potential for implementing the integral system dynamics approach to enacting integrated health care practices with emergence of psycho-socio-cultural and structural elements in the health ecosystem and a conscious organization (Donkers, 2016) developing. I explored the notions of self-mastery, connectivity, self-reflectiveness, systems thinking, systems dynamics approaches and *complexity thinking*, *devolved individual* and *collective power* and how these *enactment* effects a *conscious learning health organization*'s efficiency, productivity, internal relational, administrative and managerial capabilities and organizational adaptation. I reflected on other research findings of how *organizational adaptation* and *awakened leaders relational interactions* enable co-designed policies (Sheikh, 2010), integral practices, governance, curriculum reforms (Barber, 2010) systems-based learning and iterative learning and eHealth; to meet the global dynamics in the 4IR (Senge et al., 2001). Another emergent transformation strategy I reflected on was the possibility to enact Goleman and Senge's (2014) *triple focus model* that can consider as *competencies* which organizations practise to distinguish excellent performers from the average.

In the following section I deliberate on my findings and reflect on the insights that I acquired which have possibilities for my personal expansion of consciousness in addition to transforming the leadership practice and provision of tertiary services in KZN DOH.

9.3 EXPANDING MY CONSCIOUSNESS FROM PERSONAL INSIGHTS

This study is based on a qualitative SD theoretical framework, which provided wholistic insights into the KZN DOH health ecosystem. The context, organizational structures, leadership mental models, decision making, systemic complexities (Morecroft, 2015), HR practices and actions as well as the nature of interacting variables effecting systemic behavior were determined through collaboration

with the FG. Collection of data from FG observations, FGD, minutes of meetings and policies provided personal, professional and organizational insights.

Literature reviews I conducted showed that traditional ethnographic methodologies are infrequently applied to health research because of time limitations, real-world practicalities, and the positivist methods used in most health-related study designs. However, medical anthropologists and sociologists have conducted various genres of classical ethnography which provide significant insights to identify understand and become aware of health policy and systems issues (Kielmann, 2012). Researchers Malinowski and Radcliffe-Brown (2010) described ethnographic studies as observing, documenting and analysing social interactions, behaviours, and perceptions that take place within groups, teams, organisations, and communities.

Thus, a nuanced ethnographic lens to descriptively analyse the KZN DOH organizational culture, systemic complexities, delays, disequilibrium, fundamental interactions in the system (Reams, 2005) and behavioural dynamics was used. As I distinguished the formal structure of the health organization for example the rules and decision-making hierarchies, I observed through FGD the influential casual subsystems created by individuals and groups within the organization (Gilson, 2012).

Ethnographic data on institutional culture and practices were presented as CLD (Morecroft, 2015) in addition to the health ecosystemic feedbacks which were codesigned with the FG. The aim of CLD was to visually present interconnecting data variables, to understand what systemic elements are crucial to improve the provision of quality care and to recommend transformational strategies impacting on the health system, organizational culture and leadership. Data analysis revealed, for example, that the HR practices in the KZN DOH and that profound influence of delays, impact on the psychological, social, economic, historic, and political feedback dynamics in the health ecosystem (Bantjes, 2017).

My initial engagement with the literature was qualitative system dynamics approach to health systems research and as I progressed with my research, I discovered that self-study is inseparably connected with insights of awakened integral leadership and emerging transformation in consciousness. Bullough's (2001) guidelines on quality self-study research posit that insight and interpretation are stimulated through self-studies. As I evolved past the intellectual understanding of self-study, I experienced definite emotions that concerned me. Reflecting on my personal, professional and organizational experiences a range of feelings included gratitude, anxiety and awareness of stereotypes surfaced. I became aware of the truths about myself, my leadership practice and observed how my research journey has offered insights of the tensions and further opportunities to deepen my consciousness, professional growth and learning.

Personal insights and interconnections emerged as I engaged with the FG, analysed the data and reflected on the research questions. In Chapter Seven, theories on the spiritual leadership model and on becoming authentic awakened integral leaders, particular insights from my experiences of growing up in a politicised, extended family, shaped my internal reference, my mental models, and my values, among others, are selfless service, integrity (Gardner et al., 2005), compassion (Scharmer, 2016), justice (Kiersch, 2015) and equity . My parents have been my primary role models; it was from my father that I learned the inner significance of working with integrity, selflessness and justice. Compassion and equity were embraced by my mum as she cared for my two siblings, grandparents and the extended family, with decorum. The dynamics of good interpersonal skills I emulated from her. My spiritual awareness (O'Brien, 2014), has been nurtured by my paternal grandmamma, whose conversations, parables and self –regulatory practices (Gardner et al., 2005) generated a deep quest for my life's purpose. My spiritual journey is inspired by my spiritual mentor Sri Sathya Sai Baba, whose teachings and education in human values programme has focused my ethical (Northouse, 2017) life-style and professional role. Analysing the data, the macro environmental apartheid variables (SAHR, 2016), together with my spiritual (Chibber, 2010) grounding, provided opportunities to expand my consciousness and empowered my personal, professional and leadership roles.

As a health activist (referenced in Chapter Three) and being subjected to a marginalized people in apartheid South Africa, I was at an early age attracted to community development, selfless service, and experienced the interconnections between power relations, in the underserved communities and the governance structures. These personal development opportunities have been enhanced, during conversation with research participants in the FG of this study. One particular example was co-designing the *authentic leader's psychosocial feedback causal loop diagram* in chapter seven, deep awareness of releasing stereotypes, of altering our interactions to improve organizational relations, and understanding the dynamic interconnections between self-efficacy (Stajkovic, 2006), optimism and resilience with work performance, job satisfaction and conscientiousness, resulted in trusting relationships (Gilson, 2016).

Other personal insights were created from the reflections on; Theory U (Scharmer, 2007), mindfulness (WEF, 2016) and awakened leadership (Shelton, 2017), in which I could intuitively identify with the subtle changes in my consciousness and feel grounded in these contemplative practices. From these practices, I have experienced the improved ability to manage with stress, I also gained clarity and focused my psychoemotional energy, to create balance, and optimize my effectiveness to keep up with the demands of my increasingly complex professional role.

9.4 EXPERIENCIAL LEARNING AND LEADERSHIP INSIGHTS

Personal and interpersonal collaboration and feedback empowers learning, thinking, and knowing divergent views and alternative perspectives; which are other examples that underpins the self-study framework (Samaras, 2011). My awareness of our interconnectedness as well as relationships that developed through collaboration with various critical friends, the FG, my research mentors, and professional colleagues, necessitated interactive exchange of ideas between our individual and collective cognition. I also became conscious of the tension which constantly exists between self and the practice engaged in (Bullough, 2001). The balance I created in this space was evidenced by data collected and analysed, from reflecting on myself and from FGD which I have presented as CLD. According to Northfield and Loughran (1997), self -study is about personal reflection professional development and the existential orientation to change how we practise and transform who we are and our ways of Being (Feldman 2003) as leaders. Likewise, self-study is intended to motivate leaders to be initiators of their own transformation resourcefulness (Samaras, 2011), as well as to critically examine their leadership actions, the context, the consequences of those decision activities and to consciously shift from acts based on habit, tradition, or impulse to developing ethical professional practice. Also, self-study enables leaders to strategize, enact, and evaluate their leadership practice approaches and examine impact their decisions have on health service policies, resource allocation and organizational culture. Below I describe personal insights gleaned from my experiential learning and various leadership roles.

Reflecting on my leadership roles as Ladies Forum Coordinator, Medical Camps Coordinator and an Educare Facilitator in the Sri Sathya Sai Baba's Organization; service projects, organizational skill, developing leadership and programme management frameworks, has motivated me to engage in discovering personal transformation. Actively participating in uplifting the quality of life of disempowered people, has inspired my work and laid the foundation to practise unity in diversity, and the universal inner structure of good leaders (Chibber, 2010). These roles have deepened my awareness that leadership is a service.

Becoming aware of my "blind spots", which Scharmer (2007) refers to in Theory U, has provided me with opportunities to access my filters and examine self-defined boundaries, thereby creating a flow of energy to evolve and transform the way of my being authentic, understanding myself. My leader-self and reflection-before-action has emerged. Conversations with my research mentor on leadership studies have sensitized me to what Scharmer (2016, p. 34) described as "*the essence of leadership is to shift the inner place from which people operate*". By *connecting* to my *inner Source*, and *self-reflection* practices, I have become self-aware of my learning needs, to develop as an authentic leader, and to balance my emotional and spiritual intelligence. To address my learning needs, I am committed to evolving my self-discipline practices, my willpower, and courage to be true to my conscience.

Reflecting on the data of mental models in this study, I have developed a deeper understanding of our interconnections among teams and the apartheid memory (Stevens, 2013), which influences our intentions, behaviour and decision-making, as described in the policy decision-making and power relations causal loop diagram in chapter six workforce planning.

Other experiences which I have observed, on awakened integral leadership practices, is when relevant stakeholders are identified with inclusive, interactive engagement, these diverse health teams display enthusiasm, actively participate, take ownership for their actions and exhibit accountable decision-making behaviour (Reynolds, 2010). Moreover, from these practical experiences, I was able to associate the description that Scharmer (2016), in Theory U provides, that *observing what is happening and trying to make sense of it, transforms actors thought, relations and intentions.* Insights I derived from analysing the awakened *integral leadership theory*, were that an understanding of an all-encompassing, political, economic, social, and environmental context is essential, to solving complex social problems. I was able to correlate the awakened integral leadership organization (Elworthy, 2014) complexity thinking theories (Best, 2014) and complex adaptive systems (CAS) discussed in Chapter Eight, to the analogy of our complex human system and the holistic integration among subtle energy sheets, referred to in Figure 56, as sub-systems functioning in harmonious relation, restoring balance naturally. Insights I derived from the emergent techniques described in Chapter Seven and the transformative practices illustrated in Figure 54, reveals that these subtle energy sheaths cause feedback on our dynamic behavioural, psychoemotional, spiritual and conscious interconnections. Synchronistical organizational behaviour occurs as authentic awakened integral leaders reestablish personal balance among these energy sheaths by resonating positive energy within their organizations.
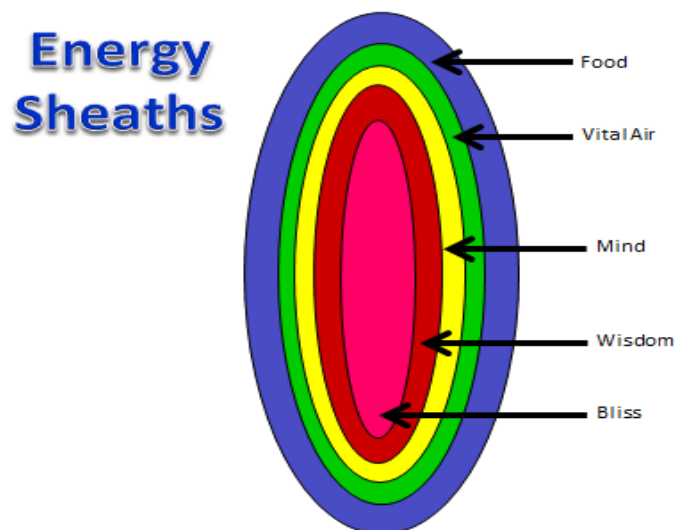

Figure 57: Energy Sheaths (adapted from Ghooi, 1990)

Using the awakened leadership theory to implement an integral organizational culture which regularly identified knowledge gaps in health practice processes to enabled iterative holistic learning, and change in thinking and practice behaviours (Lane, 2013) among transdisciplinary teams, remains a *challenge*. I found it perplexing to implement the awakened integral leadership values, especially when dealing with *divergent power*, or leaders with self-interest, individual agendas, and in an organizational culture where there is a diminishing sense of "we" and "us". Another systemic organizational contextual variable were mental models for example, as described by the FG, that leaders "being stuck" in the past, or general "happy with the status quo" was challenging to *change work and performance standards.*

Interestingly, I observed that *complex collective change* was possible, as occurred in the KZN Oncology crisis, where the *felt needs* of co-workers existed, where "*conscience pain"* occurred, where the *frustration* among team members reach *overload* and the realization that we "*cannot make progress alone"* dawned.

When facilitating diverse teams as discussed in chapter eight, I found that *by enabling staff* to work collectively, to acknowledge themselves as *equal*, *causal participants within a system*, as well as identifying with each other beyond their differences and as individuals with a potential to *add value*, motivated them to *enact as integral teams*.

9.5 REFLECTIONS ON METHODOLOGY

Applying the principles of a nuanced self -study, I was determined to create awareness of how the SD approach facilitates health leaders and organizational transformation (Samaras, 2012).

As a researcher using the *qualitative SD approach* in this study, I explored the *existential crisis* in KZN DOH tertiary hospitals. Conscious use of open-ended questions allowed me to create the space for the participants to respond freely, share experiences, and trustworthy dialogue. Analysis in Chapter Three, of the underlying *systemic factors* and their *inter-relationships* (Creswell, 2014), and by *co-designing CLD,* provided insights on *delays causing tensions* in policy implementation, governance and decision- making, and the impact on the supply and demand of specialists in KZN DOH became evident. This data on the dynamic systemic factors and systemic disequilibrium for example delays in decision making that impacted on the four Tertiary Hospitals recruitment of specialists, provided deeper understanding in response to my research questions one and two referred to in 1.6., page 6.

Reflecting on the *dynamic complexity theory*, referred to in Chapter Four, led to insight on how historical budget allocations were persistently undertaken and resistance to change emerged. These

insights addressed my research question three, on how a system dynamics methodology can be used to enable resource allocation to meet escalating patient demands. Moreover by using Morecroft's (2015) *underinvestment growth model*, for the *dynamic hypothesis*, a deeper understanding of the systemic effect, *policy decision making* and *power relations* between HR and finance had on investing in recruiting specialists, emerged. In Chapter Six, the CLD on policies, tertiary hospital performance and investment in capacity, demonstrated the need to *engage stakeholders* in policy reform and service redesign and learnings from best practices experiences materialised. This chapter also provided data, and insights in response to my research question four, on how by using the qualitative system dynamics approach to envision interventions, reconciles policy needs, recruitment and escalating patient demands.

Insights were also gained in Chapter Eight, through the exploration of *complexity thinking theory (*Geerlof, 2016), wherein mental models, paradoxical perspectives, counterintuitive behaviour and duality between the pragmatics and the idealists exist in a dynamic health ecosystems, like the KZN DOH. Further learnings, referred to in Chapter Seven were that, the pragmatics believed that by using comprehensive and practical approaches, complex systemic problems can be solved, whereas the idealists are concerned in rediscovering their humanity and seeking their highest potentialities (Jaworski, 2012), with emphasis on the importance of the psychospiritual development and especially in aspiring to become agents of change.

As I am ascribing to become an awakened integral leader, I realised that counter-intuitive behaviour and duality is inherent in life and work; therefore, both are necessary and contribute to the collective evolution in personal and organizational development.

Engaging with the literature deepened my understanding of these inter-relationships in the dynamic complexity of the health ecosystem, which can be used as leverage in the system to influence equilibrium, for example as explained in Chapter Four, in the supply and demand of specialists and develop potential to retain specialists.

Samaras (2011) suggests that multiple sources of data collection benefits verification, credibility and trustworthiness in a self-study. Also, purposeful and relevant questions about their leadership practice enable transformative change in the leader. Reflecting on my research journey reinforced personal commitment to make recommendations from data collected and become alert to authentic awakened integral leadership learning opportunities, thereby meeting quality standards of individual and collective care.

As I engaged with the *data collected*, the development of CLD (Morecroft, 2015), the *iterative processes*, and *data verification* with the FG research participants, *several revisions* were prepared based on their *feedback*. These *interactive pragmatic experiences* provided me with opportunities to develop my *emotional intelligence*, by becoming aware of my ego state inducing my impatience, anger and anxiety. When I consciously released these negative emotions and created an open *psychoemotional space*, a sense of relief and therapeutic healing were experienced.

I also became sensitive to these *emotional and spiritual systemic effects* on co-workers and the possibilities of envisioning interventions to *balance* organizational climate, policy needs, and recruitment in relation to escalating patient demands thereby facilitating *equilibrium in the health ecosystem*. I observed that both adaptive and transformative approaches to change are important. Insights gained by engaging with the qualitative (Sumari et al.,2014) system dynamics approach, improved my understanding of the organizational culture, the psychoemotional and spiritual effects which are interconnected through interpersonal relations in a real-life environment.

9.6 EXTENDING THE FIELD OF AWAKENED INTEGRAL LEADERSHIP AND SYSTEM DYNAMICS APPROACH TO TRANSFORMING HEALTH SYSTEMS

Research studies have demonstrated that awakened integral leadership (Bray et al., 2013) and applying qualitative system dynamics approach (Sterman, 2006) to transforming health systems has potential towards addressing health care provision crisis in the 21st century (Doherty, 2011) and 4IR (Oosthuizen, 2017). As I have engaged in using the awakened integral leadership and qualitative system dynamics research methodology in this study, and by co-designing CLD, I observed that to facilitate systemic transformation, integral processes require participants to enact systems and complexity thinking, engage in participative, creative conversations, trusting relationships and understand CAS for emergence to occur. Also, reflection on the transformative learning from applying the qualitative system dynamics approach as well as analyzing the health ecosystem enabled emerging complexity to become apparent.

This qualitative SD approach can be pragmatically utilized by health sector policy makers, leaders, HR practitioners and managers, through applying recommendations which will enhance the health ecosystem's behaviour. Engaging with the SD approach and awakened leadership practices as tools for transformation, offers an opportunity to *create integrated work environments* in which reductionist thinking and working in silos or fragmented subsystems are replaced by systemic and complexity thinking. For instance by co-constructing CLD, with HR and finance, workforce planning and

investing in recruiting specialists, policy decision making and collective power relations, result in progressive outcomes through *shared ownership, and consensual decision-making practice.* Also systemic and complexity thinking *strengthens teamwork,* as power is used "with" and "through" others and counterintuitive behaviour is replaced by deeper understanding and consensus. The shift in thinking from *egocentric to ethnocentric* (Scharmer, 2007) to *worldcentric* (Wilber, 2007) *attitudes, creates space in the health ecosystem* for awakened leaders to *reconnect with health workers and cocreate integral teams.* Consistent use of these awakened integral leadership practices may also be used as *leverage to change*, thereby *promoting organizational cohesiveness and effectiveness*, as tacit knowledge in these relationships becomes explicit.

Moreover, my research provided me the opportunity for academic rigour, and from the SD, systems thinking, complexity thinking, awakened leadership, emotional and spiritual intelligence theories used, insights were reflected on. Likewise I gained insights into leadership as a complex responsibility, embedded in multidimensional social interactions, beliefs and paradigms, and have become aware of the need to further transform my leadership practices.

My awakened integral leadership and qualitative system dynamics study, will add value to the repository of knowledge in *rethinking health systems transformation*, in *policy reforms*, in *sustainable repositioning,* in leadership practices and in *awakening potential* for *integral leader's enactment.* Through deeper self-understanding of dynamic behavioural, psychoemotional-spiritual and conscious interconnected transformative processes, improvements in leadership faculties, systemic effects on organizational culture, work ethics, health service delivery and balance in work-life may emerge. Literature on awakened leadership practices like *self-reflection and scrutinizing personal leadership practices* in developing people confirms that by empowering others, efficiency and effectiveness in work performance results (Northouse, 2017). Furthermore, caring for the *psychoemotional needs of individuals expands stakeholder awareness and impacts on organizational behaviour and organizational culture that is based on a caring ethos, trust and respect* (Coxen et al., 2016). Consciously developing a culture of respect, trust, in the significance of the value of diversity, and through authentic leadership practices, *consensual decision making processes and emergence of co-shared values,* dynamic healthy organizational cultures can be promoted. Through consistent enactment of these leadership practices in *an integral reflexive mode*, leaders can *consciously impact* on the organizational culture and the effects of the organizational climate. Emerging from the deconstruction of reductionist thinking and myopic attitudes, in *managing conflict*, leaders and stakeholders beliefs and values can be examined, as these psychoemotional and spiritual variables impacts on *co-constructed decision-making and organizational behaviour.*
Another contribution this study provides to leadership theories is that when leaders practice transformative strategies like introspection and reflection, which are individual processes occurring

within private spaces, and are able to *transcend to co-flexivity, self- enquiry then expands to cooperative group, team or organizational enquiry.* This methodology affirms leaders as *agents* of *change,* which *generates data* and *deeper holistic and comprehensive awareness of leadership practices as self-awareness, self -knowledge and organizational behaviour are intensified*. These awakened leadership practices enables *cooperative ethical governance,* for example, averts organizational tension between health workers, management and labour unions. This shift from reactive, protest driven behaviour and cerebral understanding, to *conscious reflective introspective behaviour, and consensus, inclusive interactions* among all stakeholders creates organizational relationships dedicated to trust and respect for divergent opinions, alternative perspectives and quality service delivery.

These SD approaches and awakened leadership practices can also be used as transformative tools and as a prototype by other health leaders and managers to critically evaluate and enact concepts to examine their practice, policies, organizational priorities, and generate strategies to improve themselves, those that they lead, and organizational performance.

Other leaders may consider or further develop the co-designed emergent awakened integral leadership model illustrated in Figure 54, to become authentic awakened integral leaders. Also, leaders can deliberate on how this SD methodology was useful in providing alternative pathways to thinking about the key issue being addressed. This SD approach to organizational transformation and strategies to become awakened integral leaders has significance to construct a knowledge base regarding dynamic complexities in contexts of health systems that necessitate consistent development and to supplement international research on pragmatic methodologies to assess quality of health services (Atkinson et al., 2000). Likewise, new practices on an individual and collective level can be generated, resulting in awakened integral leaders improving their professional development and contributing to the knowledge, skill and attitudes of policy enactment, organizational development and quality enhancement in health service provisions (Samaras, 2011).

Possible limitations of the study are that the qualitative SD approach involves a researcher conversant with applying this methodology as a tool to transformation. Moreover the willingness to engage in awakened leadership practices requires honest self-enquiry, self -reflection, and transcendence to enable expanded consciousness and authentic experiences. Researchers participating in self-study should be mindful and avoid narcissistic and romantic notions that are temptations when using this methodology (Samaras, 2011). Limitations in managing change and conflict can be exposed, as this has implications for leadership practices and managing personal, professional and organizational change and conflict in the future.

9.7 CONCLUDING REMARKS

Reflecting on the insights from my study, emerging ontological evidence became accessible on deconstructing my memory and mental models, deepening my awareness of my wavering or clouded thinking mind and to shift from duality to nonduality, from separation to unity and from fragmented systems to integral dynamic systemic approaches.

 I observed the need to change leadership practices from egocentric gains as well as to maximize attention on shareholder value, plus focusing concerns with quarterly reports and returns on investment to designing collective organizational visions, which are capable when harmonizing integral leader's intuition, enacting integral collective decision making and immediate objectives with long-term goals to provide opportunities for emergence.

Practising this awakened integral leadership and system dynamics approach to personal and health systems transformation, redefines who we are, redesigns what we do; it explores new ways of enacting and energizing our ability to participate in resolving increasingly complex, multi-dimensional, socio-environmental challenges that we encounter.

Understanding the dynamic systemic context with its complexities, chaos and uncertainties, has deeply changed me; by growing my faith, steadfastness and intuition to engage in psycho-emotional spiritual transformative strategies, and in determining my fundamental discrimination abilities and spiritual identity, it positions me to enact awakened integral leadership practices.

To conclude this thesis, the words of Sri Sathya Sai Baba (Chibber, 2013, p.17) echo the essence of this study:

"The end of education is Character"

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APPENNDIX 1: ETHICAL CLEARANCE CERTIFICATE

UNIVERSITY OF ™
KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

12 March 2018

Ms Manimegalai Pillay 202523860
School of Graduate School of Business and Leadership
Westville Campus

Dear Ms Pillay

Protocol reference number: HSS/2216/017D
Project title: A System Dynamics approach to Health System Transformation: A case study of Tertiary Services
Provision in the KwaZulu-Natal Department of Health

Full Approval – Expedited Application

In response to your application received on 21 November 2017, the Humanities & Social Sciences Research Ethics
Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form,
Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through
the amendment /modification prior to its implementation. In case you have further queries, please quote the above
reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification
must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

▬▬▬▬▬ ....
Dr Shamila Naidoo (Deputy Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

cc Supervisor: Professor Kriben Pillay
cc Academic Leader Research: Dr M Hoque
cc. School Administrator: Ms Zarina Bullyraj

Humanities & Social Sciences Research Ethics Committee
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APPENDIX 2: SAMPLE OF INFORMED CONSENT

Informed Consent Letter 3C

UNIVERSITY OF KWAZULU-NATAL
GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP

Dear Mrs. Priya Lallupersad

PhD Research Project
Researcher: Ms. M. Pillay (Bowie) (0834571170)
Supervisor: Professor K. Pillay (031 - 2608300)
Research Office: Ms P Ximba (031-2603587)

I, **Manimegalai Pillay (Bowie)** am a PhD student, at the Graduate School of Business and Leadership, of the University of KwaZulu-Natal. You are invited to participate in a research project entitled **System Dynamics Approach to Health System Transformation. A Case Study of Tertiary Services Provision in the KwaZulu-Natal Department of Health**

The aim of this study is to:
Use System Dynamics Models to provide a better understanding of behavioral dynamics of the KZN DOH, the decision making processes, the complex structures of the system, policies, and complex managerial problems.

Through your participation in this Focus Group, I hope to understand how System Dynamics Models simulates the evolution of supply and demand of specialists in a predictive timeline for provisioning clinical specialties. The results of the focus group are intended to contribute to developing policies and strategies to ensure sufficient registrars are trained and specialists are recruited to prevent clinical services and managerial crises.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this focus group. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Graduate School of Business and Leadership, UKZN.

If you have any questions or concerns about participating in this study, you may contact me or my supervisor at the numbers listed above.

Sincerely

Investigator's signature   Date 26/10/17

This page is to be retained by participant

PhD Research Project
Researcher: Ms. M. Pillay (Bowie) (0834571170)
Supervisor: Professor K. Pillay (031 - 2608300)
Research Office: Ms P Ximba 031-2603587

CONSENT

I............. *Priya Lalluparsad* .... (full names of
participant) hereby confirm that I understand the contents of this document and the nature
of the research project, and I consent to participating in the research project.
I understand that I am at liberty to withdraw from the project at any time, should I so
desire.

SIGNATURE OF PARTICIPANT   DATE

...........██████████████... 3/5/2018 ....

This page is to be retained by researcher

APPENDIX 3: FOCUS GROUP QUESTIONS

Thank you for agreeing to participate in this focus group. As you are aware I am a PhD student at the Graduate School of Business and Leadership, University of KwaZulu-Natal.

My research topic is: **A System Dynamics Approach to Health System Transformation. A Case Study of Tertiary Services Provision in the KwaZulu-Natal Department of Health (KZN DOH).** I appreciate your time to avail yourself and add value to the credibility of the data that is collected. The aim of this study is to use a system dynamics (SD) approach to provide a better understanding of behavioural dynamics of the KZN DOH, the decision making processes, the complex structures of the system, policies, and complex managerial problems.

Your integrity and openness in these focus group conversations will provide an assessment of your understanding of the context, world view, policies and behavioural dynamics of the KZN DOH. Reflecting on how the problem arose in order to identify the source of the problem and the mental models portrayed by the various actors, will reveal how the application of the SD approach expands our understanding and diffuse these types of tensions within managed systems.

I trust your answers will be candid as I ask you to please reflect on the following questions:

1. How will you describe the context of the KZN DOH?
2. What are the decision-making processes in Tertiary Hospitals?
3. In what way do the relationships among actors (stakeholders) in the provision of tertiary services affect knock-on consequences for service delivery?
4. What are the interactions between policy implementation and human resource practices?
5. What do you think lead to the shortage of specialists in KZN DOH?
6. Describe the consequences of the shortage of specialists to health service delivery.
7. Who are the actors that need to be consulted to effect changes to resolve this situation?
8. Describe the relationships among actors, policy implementation and the system behaviour.
9. What changes need to be made to resolve this situation?

APPENNDIX 4: TURNITIN REPORT

Turnitin Originality Report
Final Thesis by M Pillay
From Draft Submissions (PhD's 2019)

- Processed on 27-Nov-2019 10:08 SAST
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APPENNDIX 5: LANGUAGE CLEARANCE CERTIFICATE

# THE WRITING STUDIO
Writing and Editing Practice

PROOFREADING AND EDITING OF DISSERTATION

TO WHOM IT MAY CONCERN

22 NOVEMBER 2019

This dissertation, entitled *A system dynamics approach to Health System transformation: A case study of tertiary services provision in the KwaZulu-Natal Department of Health,* has been edited to ensure technically accurate and contextually appropriate use of language for research at this level of study.

Yours sincerely
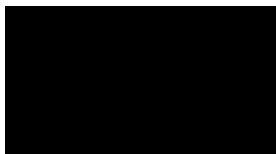
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